TITLE OF THE INVENTION

A Method and System for Reporting Shooting Incidents and for Remotely Activating Emergency Response Devices

- abstract too long.
- figures 3, 4, 5 are all 1 Fig?
- issues w/ arrow in Figs
- overall good!
- includes Room (Fig 11) & A/R (Fig 12) ✓
Both are enabled

A

Best in class

BACKGROUND OF THE INVENTION

[0001] The present invention generally relates to a remote activation system and methods. More particularly, the present invention relates to a remote activation system and method having a pull station, a central server in communication with the pulls station and other emergency device.

[0002] Recently, school shootings have become increasingly frequent. Many systems try to remedy the shooting incidents by better informing the user of the occurrence of shooting incidents, detecting injury, or providing location of those who needs help. To inform user of shooting incidents, many systems try to detect the sound of gunshot or receive user generated report of shooting incidents. For detecting injury, a system tries to use nano bots to detect impact. For providing location of the those who needs help, some system tried to generate a map with user inputted location.

[0003] A method for a communication and emergency notification system is disclosed in patent US 10,270,899 B1 by Merjanian et al. A system is created where the first user uploads the type of emergency and the server forwards the emergency information to predetermined users based on the type of emergency and the location of the emergency through SMS messages. The system also discloses a communication system where the first user can update the uploaded information and the server distributes the updated information to predetermined users.

[0004] A method for detecting the sound of gunshot and reporting shooting incidents disclosed in Pub. No.: US 2018/0053394 A1 by Gersten. The system includes a first device that can continuously record and compare environmental sounds with predetermined threshold criteria for a dangerous event. If the criteria is met, the first device transmits the recorded sound and related information to a central server. The server verifies the sound and distribute the notification to a second device. The second device displays the event location by rendering it onto a map.

[0005] A system for detecting head injuries is disclosed in Pub. No.: US 2020/0187860 A1 by Myslinski. The system includes a plurality of nano-nodes placed in or on a user. The nano-nodes can detect head injury by detecting force and sound. If the force or sound exceeds a predetermined criteria, the nano-nodes can notify the user of the occurrence of a head injury.

[0006] A system for training law enforcement using virtual reality is disclosed in Pub. No.: US 2022/0114905 A1 by Shiffman and Dabush. The system renders training simulations onto virtual reality headset displays and allows the user to interact with other users and the environment rendered in the simulation.

BRIEF SUMMARY OF THE INVENTION

[0007] One or more of the embodiments of the present invention provide a system for remotely activating emergency response devices, a medical dressing affixed with a transmitting unit, and a system to display a tracked device.

[0008] The system for remotely activating emergency response device includes a first device that, when activated, sends an activation signal and an identification number (ID #) to a server. The server uses the ID # to determine which device to activate and what types of response is needed by comparing the ID # with other device's ID #. The server then sends a device activation signal to the devices that needed to be activated and execute the corresponding response required.

[0009] The system for medical dressing affixed with a transmitting unit includes a backing layer, an adhesive layer affixed to the backing layer, an electrical insulating film affixed to the adhesive layer, and a transmitting unit including a circuit that connects to a power source, a processor, a transmitter, a memory, and a GPS receiver. The electrical insulating film extends into the transmitting unit and interrupts the electrical circuit. Once the electrical insulating film is removed, the electrical circuit is energized and the processor, the memory, and the GPS receiver are powered on. The GPS receiver receives a GPS coordinate and sends it to the processor. The processor retrieves an IP address from the memory and send the GPS coordinate to the transmitter. The transmitter transmits the IP address and the GPS coordinate to the retrieved IP address.

[0010] The system for displaying location information sent by devices includes a device that has a GPS receiver, a server, and a phone including a display, a memory, a transceiver, and a processor. The device first transmits a GPS coordinate to a server. The server decides if the GPS coordinate should be transmitted to the phone based on pre-determined criteria. The phone processor, after receiving the GPS coordinate through the transceiver, access the memory for a pre-loaded map. The phone processor then renders an image with the GPS coordinate overlayed on the map for the display to display.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Figure 1 illustrates an emergency device remote activation system according to an embodiment of the present invention.

[0012] Figure 2 illustrates a flow chart of an embodiment of a process for remotely activating emergency response device.

[0013] Figure 3 illustrates a flow chart of an embodiment of a process for remotely activating emergency response device.

[0014] Figure 4 illustrates a flow chart of an embodiment of a process for remotely activating emergency response device.

[0015] Figure 5 illustrates a flow chart of an embodiment of a process for remotely activating emergency response device.

[0016] Figure 6 illustrates the data tables stored in the server memory, pull station memory, patch box memory, phone memory, and patch memory according to an embodiment of the present invention.

[0017] Figure 7 illustrates the components the data tables stored in the server memory, pull station memory, patch box memory, phone memory, and patch memory according to an embodiment of the present invention.

[0018] Figure 8 illustrates a system to track and display location of patches according to an embodiment of the present invention.

[0019] Figure 9 illustrates a flow chart of an embodiment of for sending a patch's location to a phone.

[0020] Figure 10 illustrates a flow chart of an embodiment of a process for displaying the tracked patches on phone display.

[0021] Figure 11 illustrates a flow chart of an embodiment of a process for converting received patch GPS information into room numbers.

[0022] Figure 12 illustrates a flow chart of an embodiment of a process for displaying the patch GPS information onto an augmented reality displaying device.

[0023] Figure 13 illustrates a GPS trackable patch according to an embodiment of the present invention.

[0024] Figure 14 illustrates the cross section of the GPS trackable patch according to an embodiment of the present invention.

[0025] Figure 15 illustrates a side view of a patch box according to an embodiment of the present invention.

[0026] Figure 17 illustrates a pull station according to one embodiment of the invention.

[0027] Figure 18 illustrates one embodiment of the transeciving unit according to one embodiment of the invention.

[0028] Figure 19 illustrates one embodiment of the image rendered by the phone processor for the phone display to display according to one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

[0029] Figure 1 illustrates one embodiment of an emergency device remote activation system 185 comprising a pull station lever 100, a pull station electrical contact 105, a pull station processor 110, a pull station memory 150, a pull station alarm 175, a pull station transceiver 115, a server receiver 120, a server processor 125, a server memory 155, a server transmitter 130, a second pull station transceiver 160, a second pull station processor 165, a second pull station alarm 170, a patch box transceiver 135, a patch box processor 140, a patch box solenoid 145, and a dialing device 180.

[0030] The pull station lever 100 is mechanically connected to the pull station electrical contact 105. The pull station electrical contact 105 is connected the pull station processor 110 electrically. The pull station processor 110 is connected the pull station memory 150 electrically. The pull station alarm 175 is connected to the pull station processor 110 electrically. The pull station transceiver 115 is connected to the pull station processor 110 electrically. The pull station transceiver 115 is connected to the server receiver 120 through a cellular network. The server receiver 120 is connected to the server processor 125 electrically. The server processor 125 is connected to the server memory 155 electrically. The server processor 125 is connected to a dialing device 180 electrically. The server processor 125 is connected to the server transmitter 130 electrically. The server transmitter 130 is connected to the second pull station transceiver 160 through a cellular network. The server transmitter 130 is connected to the patch box transceiver 135 through a cellular network. The second pull station transceiver 160 is connected to the second pull station processor 165 electrically. The second pull station processor 165 is connected to the second pull station alarm 170 electrically. The patch box transceiver 135 is connected to the patch box processor 140 electrically. The patch box solenoid 145 is connected to the patch box processor 140 electrically.

[0031] In operation, the pull station lever 100, when pulled, makes contact with the pull station electrical contact 105. The pull station electrical contact 105 generates and sends a notification signal to the pull station processor 110. After receiving the notification signal sent by the electrical contact 105, the pull station processor 110 generates and sends an alarm activation signal to the pull station alarm 175 to activate an audible alarm. The pull station processor 110 also accesses the pull station memory 150 and retrieve a pull station identification number (ID #) and a pre-determined server IP address. The pull station processor 110 sends the retrieved ID # and server IP address to the pull station transceiver 115. The pull station transceiver 115 send the ID # to the sever IP address through the cellular network. The server receiver 120 with the corresponding IP address receives the ID # sent by the pull station transceiver 115. The server processor 125 retrieves the ID # and retrieves all the pull station ID # stored in the server memory 155. The server processor 125 compares the received ID # with the retrieved ID #s until a match is found. The server processor 125 then retrieve the school data table that contains the matched ID #. The server processor 125 retrieves all the pull station IP address from the matched school data table as a list. The server processor 125 retrieves all the pull station ID #s that corresponds with the retrieved pull station IP address. The server processor 125 then compare the retrieved pull station ID # with the received pulls station ID # until a match is found. The server processor 125 then disregard the pull station IP address with the corresponding matched pull station ID #. The server processor 125 generates an alarm activation signal and sends the alarm activation signal with the list of pull station IP address to the server transmitter 130. The server transmitter 130 sends the signal to each of the IP address through the cellular network. The second pull station transceiver 160 with the corresponding IP address receives the alarm activation signal. The second pull station processor 165 retrieves the alarm activation signal from the second pull station transceiver 160. The second pull station processor 165 generates and sends an alarm activation signal to second pull station alarm 170. After receiving the alarm activation signal, the pull station alarm 170 is activated and emits an audible alarm.

[0032] Further in operation, the server processor 125 retrieves all the patch box IP address from the matched school data table stored in server memory 155 as a list. The server processor 125 generates a patch box activation signal and sends the patch box activation signal with the list of patch box IP address to the server transmitter 130. The server transmitter 130 sends the patch box activation signal to each of the patch box IP address in the list through the cellular network. The patch box transceiver 135 with the corresponding IP address receives the patch box activation signal sent by the server transmitter 130. The patch box processor 140 retrieves the patch box activation signal from the patch box transceiver 135. The patch box processor 140 generates and sends a solenoid activation signal to patch box solenoid 145. After receiving the solenoid activation signal, the patch box solenoid 145 is activated.

[0033] Further in operation, the sever processor 125 retrieves an emergency response contact phone number and a pre-configured message from the matched school data table stored in the server memory 150. The server processor 125 activates a dialing device 180 and sends the emergency response contact phone number and the pre-configured message to the dialing device 180. The dialing device 180 dials the number and plays the pre-configured message.

[0034] In an alternative embodiment, the server receiver 120 and the server transmitter 130 is replaced by other transceving devices such as a transceiver.

[0035] In an alternative embodiment, the dialing device 180 is replaced by or complemented by a police emergency feed posting service.

[0036] In an alternative embodiment, the pull station alarm 175 and the second pull station alarm 170 is replace by or complemented by other alarm generating device such as a visual alarm.

[0037] In an alternative embodiment, the pull station lever 100 is replaced by other machinal or electrical switching mechanism.

[0038] In an alternative embodiment, the patch box solenoid 170 is replaced by other motion controlling device.

[0039] In an alternative embodiment, the system has a plurality of pull stations.

[0040] In an alternative embodiment, the system has a plurality of patch boxes.

[0041] In an alternative embodiment, the pull station transceiver 160 and the patch box transceiver 135 are replaced by a transmitting device and receiving device such as a transmitter and a receiver.

[0042] In an alternative embodiment, the server processor 125 uses an alternative method to compare the received ID # with the retrieved ID #s.

[0043] In an alternative embodiment, the server processor 125 uses other identifying data to distinguish different pull stations such as the IP address of each pull station.

[0044] Figure 2, Figure 3, Figure 4, and Figure 5 illustrates a flowchart of an embodiment of a process for remotely activating emergency response devices. First, at step 200, the pull station lever 100 is pulled. At step 205, a notification signal is generated by the pull station electrical contact 105 and the notification signal is sent to the pull station processor 110. At step 210, the pull station processor 110 receives the notification signal. At step 245, the pull station processor 110 generates and sends an alarm activation signal to the pull station alarm 175. At step 215, the pull station processor 110 retrieves the ID # and the server IP address from the pull station memory 150. At step 220, the pull station processor 110 sends the ID # and the server IP address to the pull station transceiver 115 and the pull station transceiver 115 sends the ID # to the server IP address through the cellular network. At step 225, the ID # is received by the server receiver 120 with a corresponding IP address. At step 230, the ID # is received by the server processor 125 from the server receiver 120. At step 235, the server processor 125 retrieves all pull station ID #s from the server memory 155. At step 240, the server processor 125 compares the received ID # against each of the retrieved pull station ID # until a match is found. At step 250, the server processor 125 retrieves the school data table from the server memory 155 that contains the matched ID #.

[0045] Further in the flowchart, at step 300, the server processor 125 retrieves all the IP address from each of the pull station data table from the matched school data table as a list. At step 310, the server processor 125 compares each of the retrieved IP address with the IP address that sent the pull station ID #. At step 320, the server processor 125 disregards the matched IP address from the list of IP address. At step 330, the server processor 125 generates a pull station activation signal and send the pull station activation signal with the list of IP address to server transmitter 130. At step 340, the pull station activation signal is sent by the server transmitter 130 to each of the IP address in the list. At step 350, the pull station activation signal is received by the second pull station transceiver 160 with the corresponding IP address. At step 360, the pull station activation signal is retrieved by the second pull station processor 165 from the second pull station transceiver 160. At step 370, the second pull station processor 165 generates and sends an alarm activation signal to second pull station alarm 170.

[0046] Further in the flowchart, at step 410, the server processor 125 retrieves all the patch box IP addresses from the school data table store in the server memory 155 as a list. At step 420, the server processor 125 generates a patch box activation signal and sends the patch box activation signal with the list of IP address to the server transmitter 130. At step 430, the server transmitter 130 sends the patch box activation signal to each of the IP address in the list. At step 440, the patch box activation signal is received by the patch box transceiver 135 with the corresponding IP Address. At step 450, the patch box processor 140 retrieves the patch box activation signal from the patch box transceiver 135. At step 460, the patch box processor 140 generates and sends a solenoid activation signal to the pull box solenoid 145.

[0047] Further in the flowchart, at step 510, the server processor 125 retrieves the emergency response contact phone number and a pre-configured message from the school data table store in server memory 155. At step 520, the server processor 125 sends the emergency contact phone number and the pre-configured message to a dialing device 180. At step 530, the dialing device 180 dials the emergency response contact phone number and plays the pre-configured message.

[0048] In an alternative embodiment, the pull station has the ability to notify the server of a low battery in the pull station power source. In this embodiment, the pull station processor 110 retrieves the voltage of the pull station battery periodically and a predetermined voltage is stored in the pull station memory 150. If the pull station is connected to an outside power supply, the pull station processor 110 disregards the action. If the retrieved voltage is higher than the predetermined voltage stored in the pull station memory 150, the pull station processor 110 disregards the retrieved voltage. If the retrieved voltage is less than or equals to the predetermined voltage, the pull station processor 110 generates a low battery signal and retrieves the server IP address from the pull station memory 150. The pull station processor 110 then sends the low battery signal and server IP address to the pull station transceiver 115. The pull station transceiver 115 then sends the low battery signal to the server IP Address through the cellular network.

[0049] In an alternative embodiment, the patch box has the ability to notify the server of a low battery in the patch box power source. In this embodiment, the patch box processor 140 retrieves the voltage of the patch box battery periodically and a predetermined voltage is store in a patch memory. If the patch box is connected to an outside power supply, the patch box processor 140 disregards the action. If the retrieved voltage is higher than a predetermined voltage stored in the parch box memory, the patch box processor 140 disregards the retrieved voltage. If the retrieved voltage is less than or equals to a predetermined voltage, the patch box processor 140 generates a low battery signal and retrieves the server IP address from the patch box memory. The patch box processor then sends the low battery signal and server IP address to the patch box transceiver 135. The patch box transceiver 135 then sends the low battery signal to the server IP Address through cellular network.

[0050] Figure 6 and figure 7 illustrates the data table stored in the server memory 155, the pull station memory 150, the patch box memory 750, the phone memory 720, and the patch memory 740 according to an embodiment of the present invention.

[0051] The server memory 155 contains a first school data table 615.

[0052] The first school data table 615 includes the following data tables: a pull station data table 620, a patch box data table 625, an address of the school 630, an emergency contact phone number 635, the school GPS coordinates 640, a predetermined distance factor 641, and a pre-configured message 642.

[0053] The pull station data table 620 includes a first pull station data table 645 and a second pull station data table 650.

[0054] The first pull station data table 645 includes the first pull station ID # 655, and an IP address 660.

[0055] The second pull station data table 650 includes the second pull station ID # 665 and an IP address 670.

[0056] The patch box data table 625 includes a first patch box data table 701.

[0057] The first patch box data table 701 includes a patch box ID # 700 and an IP address 705.

[0058] The pull station memory 150 includes a server IP address 715 and an ID # 716.

[0059] The phone memory 720 includes a sever IP address 725 and a map information 730.

[0060] The patch memory 740 includes a server IP address 745.

[0061] The patch box memory 750 includes a server IP address 755.

[0062] In operation, all of the tables are loaded into their respective memories by writing the data onto their respective the memories at set up by the installing agent. For sending the activation signal by the pull station transceiver 115, the pull station processor 110 retrieves the server IP address and the ID # from the pull station memory 150. The pull station processor 110 then sends the sever IP address and the ID # to the pull station transceiver 115. The pull station transceiver 115 sends the ID # to the sever IP address through the cellular network.

[0063] Further in operation, for activating the second pull station, the server receiver 120 receives the ID # sent by the first pull station transceiver 115. The server processor 115 retrieves the ID # from the server receiver 120. The server processor 125 retrieves all the pull station ID #s from the server memory 155. The server processor 125 compares the received ID # against each of the retrieved pull station ID # until a match is found. The server processor 125 retrieves the school data table from the server memory 155 that contains the matched ID #. The server processor 125 retrieves all the IP address from each of the pull station data table 620 from the matched school data table. The server processor 125 compares the retrieved IP address with the IP address that sent the pull station ID #. The server processor 125 disregards the matched IP address. The server processor 125 generates a pull station activation signal and send the pull station activation signal with the remaining IP addresses to the server transmitter 130. The pull station activation signal is sent by the server transmitter 130 to each of the IP address. The pull station activation signal is received by the second pull station transceiver 160 with the corresponding IP address. The pull station activation signal is retrieved by the second pull station processor 165 from the second pull station transceiver 160. The second pull station processor 165 generates and sends an alarm activation signal to second pull station alarm 170.

[0064] Further in operation, for activating the patch box, the server processor 125 retrieves the IP address from each of the patch box data table 625 from the matched school data table. The server processor 125 generates a patch box activation signal and sends the patch box activation signal with the IP address to the server transmitter 130. The server transmitter 130 sends the patch box activation signal to the IP address. The patch box activation signal is received by the patch box transceiver 135 with the corresponding IP address. The patch box processor 140 retrieves the patch box activation signal from the patch box transceiver 135. The patch box processor generates and sends a solenoid activation signal to the pull box solenoid 145.

[0065] Further in the flowchart, for dialing the emergency response phone number, the server processor 125 retrieves the emergency response contact phone number and the pre-configured message from the matched school data table. The server processor 125 sends the emergency contact phone number and the pre-configured message to the dialing device 180. The dialing device 180 dials the emergency response contact phone number and plays the pre-configured message.

[0066] In an alternative embodiment, all the data tables are loaded to their respective memories by people other than the installing agent. In one embodiment, the data tables are loaded to their respective memories when the devices are manufactured.

[0067] In an alternative embodiment, the server memory 155 stores a plurality of school data tables. The additional school data tables have individual data tables similar to the first school data table 615.

[0068] In an alternative embodiment, the emergency response contact phone number 635 is complemented by or replaced by an emergency response notification system. In one embodiment, the emergency response contact phone number 330 is replaced by an emergency response IP address. In operation, the server processor 125 retrieves the IP address and generates an emergency response activation signal. The server processor 125 sends the emergency response activation signal and the IP address to the server transmitter 120. The server transmitter 130 sends the emergency response activation signal to the IP address.

[0069] In an alternative embodiment, the pull station data table 620 stores a plurality of pull station data tables. The additional pull station data tables have data tables similar to the first pull station data table 645 and second pull station data table 650.

[0070] In an alternative embodiment, the patch box data table 625 stores a plurality of patch box data table. The additional patch box data tables have data tables similar to the first patch box data table 701.

[0071] In an alternative embodiment, the patch box data table 625, the first pull station data table 620, and the second pull station data table 650 have additional data stored in the data table named battery statues and predetermined voltage. The battery statues are not predetermined and could be updated through the battery level checking function.

[0072] Figure 8 illustrates one embodiment of a system to track and display the location of patches comprising an insulation film 800, a battery 805, a patch GPS receiver 850, a patch processor 810, a patch memory 855, a patch transmitter 815, a server receiver 820, a phone transmitter 860, a phone GPS receiver 875, a server processor 825, a server memory 865, a server transmitter 830, a phone receiver 835, a phone processor 840, a phone memory 870, and a phone display 845.

[0073] The insulation film 800 is placed between the battery 805 and a circuit that connects the patch GPS receiver 850, the patch transmitter 815, and the patch processor 810. The insulation film 800 also blocks the electrical connection between the battery 805 and a circuit that connects the patch GPS receiver 850, the patch transmitter 815, and the patch processor 810. The patch memory 855 is electrically connected to the patch processor 810. The patch GPS receiver 850 is electrically connected to the patch processor 810. The patch transmitter 815 is electrically connected to the patch processor 810. The server receiver 820 is connected to the patch transmitter 815 through the cellular network. The server processor 825 is electrically connected to the server receiver 820. The server memory 865 is electrically connected to the server processor 825. The server transmitter 830 is electrically connected the server processor 825. The phone receiver 835 is connected to the server transmitter 830 through the cellular network. The phone processor 840 is connected the phone receiver 835 electrically. The phone memory 870 is connected the phone processor 840 electrically. The phone GPS receiver 875 is connected to the phone processor 840 electrically. The phone display 845 is connected to the phone processor 840 electrically.

[0074] In operation, when the insulation film 800 is removed, the patch battery 805 makes contact with a circuit that connects to the patch GPS receiver 850, the cellular transmitter 815, and the patch processor 810. The patch GPS receiver 850 receives the patch GPS information (GPS coordinate and elevation). The patch processor 810 retrieves the patch GPS information from the patch GPS receiver 850. The patch processor 810 retrieves the server IP address from the patch memory 855. The patch processor 810 sends the patch GPS information and server IP address to the patch transmitter 815. The patch transmitter 815 sends the patch GPS information to the server IP address through the cellular network. The server receiver 820 with the corresponding IP address receives the patch GPS information.

[0075] Further in operation, the phone GPS receiver 875 receives the phone GPS information. The phone processor 840 retrieves the phone GPS information from the phone GPS receiver 875. The phone processor 840 retrieves the server IP address from the phone memory 870. The phone processor 840 sends the server IP address and the phone GPS information to the phone transmitter 860. The phone transmitter 860 sends the phone GPS information to the server IP address through the cellular network. The server receiver 820 with the corresponding IP address receives the phone GPS information. The server receiver 820 also memorize the IP address that sent the phone GPS information as the phone IP address.

[0076] Further in operation, the server processor 825 retrieves the patch GPS information, the phone GPS information, and the phone IP address from the server receiver 820. The server processor 825 decides the distance between the phone GPS information and the patch GPS information. If the distance is less than or equals to the predetermined distance stored in the server memory 865, the server processor 825 sends the patch GPS information and the phone IP address to the server transmitter 830. If the distance is more than the predetermined distance, the server processor 825 disregards the patch GPS information, the phone GPS, and the phone IP address. In this embodiment, the server processor 825 retrieves the longitude and latitude from the patch GPS information and the phone GPS information. The server processor 825 then uses the Pythagorean theorem to decide the distance between the GPS coordinates of the patch GPS information and the phone GPS information. The server processor 825 then determines if the distance is greater than two miles. If it is, the server processor 825 disregards the disregard the patch GPS information, the phone GPS, and the phone IP address. If the distance is less than or equals to two miles, the server processor 825 sends the patch GPS information and the phone IP address to the server transmitter 830. The server transmitter 830 transmits the patch GPS information to the phone IP address through the cellular network.

[0077] Further in operation, the phone receiver 835 receives the patch GPS information. The phone processor 840 retrieves the patch GPS information from the phone receiver 835. The phone GPS receiver 875 receives the phone GPS information. The phone processor 840 retrieves the phone GPS information from the phone GPS receiver 875. The phone processor 840 decides the distance between the GPS coordinates of phone GPS information and patch GPS information. In this embodiment, the phone processor 840 retrieves the longitude and latitude from the patch GPS information and phone GPS information. The phone processor 840 then uses the Pythagorean theorem to decide the distance between the GPS coordinates of the patch GPS information and the phone GPS information. The phone processor 840 also retrieves the phone elevation from the phone GPS information and the patch elevation from the patch GPS information. The phone processor 840 will use the phone elevation minus the patch elevation to find out the elevation difference between the phone GPS information and the patch GPS information. The phone processor 840 accesses the phone memory 870 for the map information. The phone processor 840 renders the patch GPS coordinate and the phone GPS coordinate onto the retrieved map. The phone processor 840 renders an image containing the map with patch GPS coordinate and the phone GPS coordinate overlayed onto the map, the distance between the phone GPS coordinate and the patch GPS coordinate, and the elevation difference between the phone GPS information and the patch GPS information. The phone processor 840 sends the rendered image to the phone display 845. The phone display 845 displays the received image.

[0078] In an alternative embodiment, the server receiver 820 and the server transmitter 830 is replaced by a transceiver.

[0079] In an alternative embodiment, the phone receiver 835 and the phone transmitter 860 is replaced by a transceiver.

[0080] In an alternative embodiment, the phone is replaced by other electronic device that can receive and display images.

[0081] In an alternative embodiment, the patch is replaced by other medical dressing that can have a transmitting unit affixed to it.

[0082] In an alternative embodiment, the server transmitter 830 sends all of the received patch GPS information to the phone processor 840 through the phone receiver 835. The phone processor 840 then decides if the patch GPS information should be rendered onto a map based on a predetermined distance. In this embodiment, the phone processor 840 receives the patch GPS information from the phone receiver 835 and retrieves the longitude and the latitude from the patch GPS information. The phone processor 840 retrieves the phone GPS information from the phone GPS receiver 875 and retrieves the longitude and the latitude from the phone GPS information. The phone processor 840 uses the Pythagorean theorem to decide the distance between the patch GPS coordinate and the phone GPS coordinate. The phone processor 840 then determines if the distance is greater than two miles. If the distance is greater than two miles, the phone processor 840 disregards the received patch GPS information. If the distance is less than or equals to two miles, the phone processor 840 renders the patch GPS coordinate and the phone GPS coordinates onto a map. The phone processor 840 renders an image containing the map with the patch GPS coordinate and the phone GPS coordinate overlayed onto the map, the distance between the phone GPS coordinate and the patch GPS coordinate, and the elevation difference between the phone GPS information and the patch GPS information. The phone processor 840 sends the rendered image to the phone display 845. The phone display 845 displays the received image.

[0083] In an alternative embodiment, the server receiver 820 receives the patch GPS information from a plurality of patch transmitters. In this embodiment, the server processor 840 retrieves both the patch GPS information and the IP address of the patch that the patch GPS information is sent from as the patch IP address. The server processor 840 then uses the patch IP address as the identifying feature to distinguish different patches. The server processor 840 then performs the distance calculation to each of the received patch GPS information in relation with the phone GPS information and decides if the patch GPS information should be sent to the phone receiver 835. If multiple patch GPS information should be sent to the phone receiver 835, the server processor 840 also sends the corresponding patch IP address to the server transmitter 830 for the server transmitter 830 to send to the phone receiver 835. If multiple patch GPS information and corresponding patch IP address is received by the phone processor 840 through phone receiver 835, the phone processor 840 will use the patch IP address as a distinguishing information to render and display each of the patch GPS information.

[0084] In an alternative embodiment, the patch memory 855 also stores a predetermined ID #. The patch processor 810 also sends the ID # to the server processor 825 through the patch transmitter 815 for the server processor 825 to use as an identifying feature.

[0085] In an alternative embodiment, there are multiple phones that sends the phone GPS information to the server receiver 820. In this embodiment, the server processor 820 retrieves both the phone GPS information and the IP address of the phone receiver that sent the phone GPS information as the phone IP address. For each of the distinct phone IP address, the server processor 820 then determines the distance between each of the phone GPS information and the patch GPS information. If the distance is equal to or less than the predetermined distance, the server processor 820 sends the patch

GPS information and the phone IP address to the server transmitter 830. The server transmitter 830 then transmits the patch GPS information to the phone IP address. If the distance is greater than the predetermined distance, the server processor disregards the phone GPS information corresponding this IP address and retrieve the next distinct phone IP address to determine the distance between the patch GPS information and the next phone GPS information.

[0086] In an alternative embodiment, the phone memory 970 also stores a predetermined ID #. The phone processor 840 also sends the ID # to the server processor 825 through the phone transmitter 860 for the server processor 825 to use as an identifying feature.

[0087] Figure 9 illustrates a flowchart 980 of an embodiment for sending a patch's location to a phone. Fist, at step 900, the patch GPS receiver 850 receives the patch GPS information. Next, at step 905, the patch processor 810 retrieves the patch GPS information from the patch GPS receiver 850 and retrieves the server IP Address from the patch memory 855. At step 910, the patch processor 810 sends the server IP address and the patch GPS information to the patch transmitter 815. At step 915, the patch transmitter 815 sends the patch GPS information to the server IP address though the cellular network. At step 920, the server receiver 820 with the corresponding IP address receives the patch GPS information.

[0088] Further in the flowchart, at step 925, the phone GPS receiver 875 receives the phone GPS information. At step 930, the phone processor 840 retrieves the phone GPS information from the phone GPS receiver 875 and the server IP address from the phone memory 870. At step 935, the phone processor 840 sends the phone GPS information and the server IP address to the phone transmitter 860. At step 940, the phone transmitter 860 sends the phone GPS information to the server IP address through the cellular network.

[0089] Further in the flowchart, at step 945, the server processor 825 retrieves the phone GPS information, the patch GPS information, and the phone IP address from the server receiver 820. At step 950, the server processor extracts the longitude and the latitude from both the patch GPS information and the server GPS information. The server processor 840 uses the Pythagorean theorem to determine the distance between the GPS coordinates of the patch GPS information and the GPS coordinates of the phone GPS information. At step 960, if the distance is less than or equals to two miles, the server processor 825 sends the phone IP address and the patch GPS information to the server transmitter 830. At step 965, the server transmitter 830 transmits the patch GPS information to the phone IP address through the cellular network. At step 955, if the distance is greater than two miles, the server processor 825 disregards the patch GPS information, the phone GPS information, and the phone IP address.

[0090] In an alternative embodiment, the system has a plurality of patches. In this embodiment, when the server receiver 820 receives each patch GPS information, it will also memorize the IP address that the patch GPS information is sent from as the patch IP Address. The server processor 825 then retrieves the phone GPS information and memorize the phone IP address from the server receiver 820. For each patch GPS information, the server processor 825 then retrieves the patch information, the patch IP address, the phone GPS information, and the phone IP address. For each patch GPS information, the server processor 825 then decides the distance between the patch GPS information and the phone GPS information. If the distance is less than or equals to the predetermined distance, the server processor 825 sends the patch GPS information, the patch IP address, and the phone IP address to the server transmitter 830. The server transmitter 830 sends the patch IP address and the patch GPS information to the phone IP address. If the distance is more than the predetermined distance, the server processor 825 disregards the patch GPS information and the patch IP address and retrieve the next patch GPS information and the next patch IP address to compare the distance between the newly retrieved patch GPS information with the phone GPS information until there is no more patch GPS information to retrieve.

[0091] In an alternative embodiment, the system has a plurality of phones. In this embodiment, after the server receiver 820 receives the patch GPS information, the server receiver 820 memorize the received information as sets of phone GPS information with the corresponding phone IP address. The server processor 825 retrieves the first set of phone GPS information with the corresponding phone IP address. The server processor 825 then decides the distance between the patch GPS information and the phone GPS information. If the distance is less than or equals to the predetermined distance, the server processor sends the patch GPS information and the phone IP address to the server transmitter 830. The server transmitter 830 sends the patch GPS information to the phone IP address. If the distance is more than the predetermined distance, the server processor 825 disregards the phone GPS information and the phone IP address and retrieves the next phone GPS information and the next phone IP address to compare the distance between the newly retrieved phone GPS information with patch GPS information until there is no more phone GPS information to retrieve.

[0092] In an alternative embodiment, the system has a plurality of phones and patches. In one embodiment, when the server receiver 820 receives the patch GPS information, the server receiver 820 memorizes the IP address that the patch GPS information is sent from as the patch IP address. When the server receiver 820 receives the phone GPS information, the server receiver 820 memorizes the IP address that the phone GPS information is sent from as the phone IP address. The server processor 825 retrieves the first patch GPS information with the corresponding patch IP address and the first phone GPS information with the corresponding phone IP address from the server receiver 820. The server processor 825 then decides the distance between the patch GPS information and the phone GPS information. If the distance is less than or equals to the predetermined distance, the server processor 825 sends the patch GPS information and the phone IP address to the server transmitter 830. The server transmitter 830 sends the patch GPS information to the phone IP address. The server processor 825 then disregards the phone GPS information and the corresponding phone IP address. The server processor 825 then retrieve the next phone GPS information and the corresponding phone IP address to compare the distance between the newly retrieved phone GPS information with the patch GPS information until there is no phone GPS information to retrieve. If the distance is more than the predetermined distance, the server processor 825 disregards the phone GPS information and the phone IP address and retrieve the next phone GPS information and the corresponding phone IP address to compare the distance between the newly retrieved phone GPS information with the patch GPS information until there is no more phone GPS information to retrieve. Then, the server processor 825 retrieves the next patch GPS information and the corresponding patch IP address. The server processor

825 then compares the distance between the second patch GPS information and the first phone GPS information until there is no patch GPS information left.

[0093] In an alternative embodiment, the server receiver 820 continuously receive the patch GPS information as well as the phone GPS information with the corresponding phone IP address. The server processor 825 continuously retrieve the patch GPS information, the phone GPS information, and the phone IP address. The server processor 825 continuously compare the distance between the phone GPS information and the patch GPS information. The server processor 825 continuously send the patch GPS information and the phone IP address to the server transmitter 820. The server transmitter 820 continuously send the patch GPS information to the phone IP address.

[0094] Figure 10 illustrates a flowchart 1050 of an embodiment of a process for displaying the tracked patches on the phone display 845. First, at step 1000, the phone receiver 835 receives the patch GPS information through the cellular network. Next, at step 1010, the phone GPS receiver 875 receives the phone GPS information. At step 1015, the phone processor 840 retrieves the map information from the phone memory 870. At step 1005, the phone processor 840 retrieves the patch GPS information and the phone GPS information from the phone receiver 835. At step 1025, the phone processor 840 retrieves the phone elevation from the phone GPS information and the patch elevation from the patch GPS information. Then, the phone processor 840 uses the phone elevation minus the patch elevation to find out the elevation difference between the phone GPS information and the patch GPS information. At step 1020, the phone processor 840 renders the patch GPS coordinate and the phone GPS coordinate onto a map. At step 1030, the phone processor 840 renders an image containing the map with the patch GPS coordinate and the phone GPS coordinate overlayed onto the map and the elevation difference between the phone GPS information and the patch GPS information. At step 1035, the phone processor 840 sends the rendered image to the phone display 845. At step 1040, the phone display 845 displays the received image.

[0095] In an alternative embodiment, the phone processor 840 obtains the map information through online services. In one embodiment, the phone processor 840 generates and send a map requesting signal to the phone transmitter 860 to send request for the map information to a predetermined IP address.

[0096] In an alternative embodiment, the server processor 830 renders an image displaying the patch GPS coordinate and the phone GPS coordinate overlayed onto a map and the elevation difference between the patch GPS information and the phone GPS information. Then, the server processor 825 sends the rendered image to the server transmitter 830 with the phone IP address through the cellular network. The phone receiver 835 receives the image. The phone processor 840 then retrieves the image and sends the image to the phone display 845 for the phone display 845 to display the image.

[0097] In an alternative embodiment, the rendered image is continuously updated as the phone processor 835 continuously retrieve a continuously updated patch GPS information and a continuously updated phone GPS information.

[0098] In an alternative embodiment, the patch GPS information is sent to the phone receiver 835 without the server processor 825 deciding if the patch GPS information should be sent to the phone IP address based on the distance between the patch GPS information and the phone GPS information. In this embodiment, the phone processor 840 decides the distance between the phone GPS information and the patch

GPS information. If the distance is less than or equals to a predetermined distance, the phone processor 840 then renders the patch GPS information and the phone GPS information onto a map. The phone processor 840 then renders an image of the map overlayed with the patch GPS information and the phone GPS information, and the elevation difference between the phone GPS information and the patch GPS information and sends the image to the phone display 845. If the distance is greater than a predetermined distance, the phone processor 840 disregards the patch GPS information.

[0099] Figure 11 illustrates a flowchart 1170 of an embodiment of a process for converting the received patch GPS information into room numbers. First, at step 1100, a GPS receiver is placed onto each surface of a room. At step 1105, the GPS receiver receives a GPS information. At step 1110, the received GPS information is stored in the server memory 865 as the room GPS information. The room number corresponding to the room GPS information is also stored in the server memory 865. At step 1115, the process of placing the GPS receiver, receiving the GPS information, and storing the GPS information is repeated for each of the rooms in the target building. At step 1120, the patch GPS information is received by the server receiver 820. At step 1125, the server processor 925 retrieves the patch GPS information from the server receiver 820 and the first room GPS information from the server memory 865. At step 1130, the server processor 825 retrieves all elevation of the first room GPS information and finds the maximum room longitude and the minimum room elevation. The server processor 825 compares the patch elevation with the maximum room elevation and the minimum room elevation. If the elevation is within the range of the maximum room elevation and the minimum room elevation or equals to the maximum room elevation or the minimum room elevation, the server processor proceeds to step 1140. If the elevation is not within the range of the maximum room elevation and the minimum room elevation, the server processor 825 proceeds to step 1135 where the server processor disregards the retrieved room GPS information, retrieve the second room GPS information, and continues to step 1130. At step 1140, the server processor 825 retrieves all longitude of the first room GPS information and finds the maximum room longitude and the minimum room longitude. The server processor 825 compares the patch longitude within the patch GPS information with the maximum room longitude and the minimum room longitude. If the patch longitude within the patch GPS information is within the range of the maximum room longitude and the minimum room longitude or equals to the maximum room longitude or minimum room longitude, the server processor proceeds to 1150. If the patch longitude within the patch GPS information is not within the range of the maximum room longitude and the minimum room longitude, the server processor 825 disregards the room GPS information, retrieves the next room GPS information, and continues to step 1130. At 1150, the server processor 825 retrieves all latitude of the first room and finds the maximum room latitude and the minimum room latitude. The server processor 825 compares the patch latitude within the patch GPS information with the maximum room latitude and the minimum room latitude. If the patch latitude within the patch GPS information is within the range of the maximum room latitude and the minimum room latitude or equals to the maximum room latitude or the minimum room latitude, the server processor 825 proceeds to step 1155. If the patch latitude within the patch GPS information is not within the range of the maximum room latitude and the minimum room latitude, the server processor disregards the room GPS information, retrieve the next room GPS information, and continues to step 1130. At 1155, the server processor 825 retrieves the room number from the matching room GPS information.

[00100] In an alternative embodiment, the method of matching room with the patch GPS information is replaced by different methods.

[00101] In an alternative embodiment, the phone processor 825 replaces the server processor 825 and executes the room matching method. The phone processor 840 retrieves the room GPS information stored in the server memory 865 or downloads the room GPS information from the server memory 865 to the phone memory 870 and retrieves the room GPS information from the phone memory 870 if needed.

[00102] In an alternative embodiment, the system has a plurality of patches. In one embodiment, each patch GPS information goes through the same room matching algorithm to yield a room number.

[00103] In an alternative embodiment, the matching room number is continuously updated through the room matching method using the continuously updated patch GPS information.

[00104] Figure 12 illustrates a flowchart 1250 of an embodiment of a process for displaying the patch GPS information onto an augmented reality (AR) displaying device. First, at step 1200, the AR device transceiver receives the patch GPS information. At step 1205, the AR device processor retrieves the patch GPS information from the AR device transceiver. At step 1210, the AR device processor renders the patch GPS information into a three-dimensional space using the patch GPS information. At step 1225, the AR device GPS receiver receives the AR device GPS information. At step 1205, the AR device processor retrieves the AR device GPS information from the AR device GPS receiver. At step 1215, the AR device processor renders the AR device GPS information into the three-dimensional space rendered for the patch GPS information. At step 1230, the AR device processor retrieves the direction and the angle of where the AR device is pointing through a directional determining device. In this embodiment, the AR device utilizes a gyroscope to measure the direction and the angle the AR device is pointing at. At step 1220, the AR device processor renders an image of a graphical representation of the patch GPS information from the perspective of the AR device based on the retrieved direction and angle information. At step 1235, the AR device processor sends the rendered image to the AR device display. At step 1240, the AR device display displays the rendered image.

[00105] In an alternative embodiment, the rendered image is updated continuously based on the continuously updated patch information and the continuously updated AR device direction and angle.

[00106] In an alternative embodiment, the AR device decides if a received patch GPS information should be displayed based on the distance between the AR device GPS information and the received patch GPS information. One embodiment of the invention is to decide the distance using the Pythagorean theorem. The AR device processor extracts the longitude and the latitude of both the patch GPS information and the AR device GPS information and decides the distance between the GPS coordinates using the Pythagorean theorem. If the distance is less than or equals to two miles, the AR device processor renders the patch GPS information into a three-dimensional space. If the distance is more than two miles, the AR processor discards the received patch GPS information.

[00107] In an alternative embodiment, the server processor 825 decides if the patch GPS information should be send to the AR device based on the distance between the AR device GPS information and the patch GPS information.

[00108] In an alternative embodiment, the system has multiple patches. In such embodiment, the AR device receiver also stores the IP address for each patch GPS information as the patch IP address into the AR device memory. For each distinct patch IP address, the AR device processor renders the patch GPS information onto a three-dimensional space using the patch GPS information. The AR device processor then retrieves the AR device GPS information from the AR device GPS receiver. The AR device processor renders the AR device GPS information into the three-dimensional space rendered for the patch GPS information. The AR device processor retrieves the direction and the angle of where the AR device is pointing through a directional determining device. In this embodiment, the AR device utilize a gyroscope to measure the direction and the angle the AR device is pointing at. The AR device processor renders a graphical representation of each patch GPS information from a perspective of the AR device based on the retrieved direction and angle information. The AR device processor sends the rendered image to the AR device display. The AR device display displays the rendered image.

[00109] In an alternative embodiment, the server processor 825 renders the entire or partial image for the AR device display to display. In one embodiment, the server processor 825 renders the patch GPS location onto a three-dimensional space using the patch GPS information. The server processor 825 then sends a request to the AR device IP address for the AR device GPS information and the angle and the direction of where the AR device is pointing at. After receiving the AR device GPS information and the angle and direction of where the AR device is pointing at by the server processor 825, the server processor 825 then renders an image of a graphical representation of the patch GPS information from a perspective of the AR device based on the retrieved direction and angle information. The server processor 825 then sends the rendered image to the AR device IP address by using the server transmitter 830. The AR device receiver with the corresponding IP address receives the image. The AR device processor then retrieves the image and sends the image to the AR device display. The AR device display displays the image.

[00110] Figure 13 illustrates a GPS trackable patch including a backing layer 1315 and a transmitting unit 1320.

[00111] The transmitting unit 1320 is affixed to the backing layer 1315. In this embodiment, the transmitting unit 1320 is glued to the backing layer 1315.

[00112] In operation, the backing layer 1315 holds the transmitting unit 1315 in place and onto the backing layer 1315.

[00113] In an alternative embodiment, the backing layer 1310 has an air flow controlling device to allow venting.

[00114] In an alternative embodiment, the backing layer 1310 has different shapes.

[00115] In an alternative embodiment, the transmitting unit 1315 is affixed to different parts of the backing layer 1315.

[00116] In an alternative embodiment, the transmitting unit 1315 is affixed to other apparatuses. In one embodiment, the transmitting unit 1315 is affixed to an Automated External Defibrillator.

[00117] Figure 14 illustrates the cross section of the GPS trackable patch illustrated in the figure 13 containing the backing layer 1315, an adhesive layer 1405, an insulating film 1410, a power source 1415, and a transmitting chipset 1420 containing a patch memory 1425, a patch processor 1430, a patch transmitter 1435, and a patch GPS receiver 1440.

[00118] The adhesive layer 1405 is affixed to the backing layer 1315. The insulating film 1410 is affixed to the adhesive layer 1405. The power source 1415 and the transmitting chipset 1420 is affixed to the backing layer 1315 as the transmitting unit 1320. The insulating 1410 film extends between the power source 1415 and the transmitting chipset 1420 and blocks the electrical connection between the power source 1415 and the transmitting chipset 1420. The patch memory 1425, the patch processor 1430, the patch transmitter 1435, the patch GPS receiver 1440 are connected electrically and is contained in the transmitting chipset 1420.

[00119] In operation, the adhesive layer 1405 is affixed to the backing layer 1315. The insulating film 1420 is removably affixed to the adhesive layer 1405 and extends into the transmitting unit 1320 blocking the electrical connection between the power source 1415 and the transmitting chipset 1420. With the insulating film 1410 removed, the power source 1415 and the transmitting chipset 1420 makes contact and allows the power source 1415 to power the transmitting chipset 1420. After the transmitting chipset 1420 is powered on, the patch GPS receiver 1440 receives the patch GPS information. The patch processor 1430 then retrieves the GPS information from the patch GPS receiver 1440. The patch processor 1430 then retrieves the pre-loaded server IP address from the patch memory 1420. The patch processor 1430 then sends the patch GPS information and the server IP address to the patch transmitter 1435. The patch transmitter 1435 receives the patch GPS information and the server IP address and sends the patch GPS information to the server IP address through the cellular network.

[00120] In an alternative embodiment, the transmitting unit 1320 is affixed to different parts of the backing layer 1315.

[00121] In an alternative embodiment, the transmitting unit 1320 is affixed to the adhesive layer 1405.

[00122] In an alternative embodiment, the patch memory 1420, the patch processor 1430, the patch transmitter 1435, and the patch GPS receiver 1440 are affixed to different parts of the backing layer 1315 separately.

[00123] Figure 15 illustrates a side view of a patch box according to an embodiment of the present invention. Figure 16 illustrates a front view of the patch box of Figure 15 according to an embodiment of the present invention. As shown in Figures 15 and 16, the patch box includes an enclosure 1510, a solenoid 1520, a patch 1515, a power source 1625, a patch box processor 1630, a patch box transceiver 1640, a patch box memory 1635, and a latch 1525.

[00124] The latch 1525 is connected to the enclosure 1510 by a pivoting axle. The solenoid 1520 is affixed to the enclosure 1510 and connected to the latch 1525 by a releasable mechanism controlled by the solenoid 1520. The patch 1515 is located inside the enclosure 1510. The power source 1625 is affixed to the enclosure 1510 and is electrically connected to the patch box processor 1630, the patch box transceiver 1640, and the patch memory 1635. The patch box processor 1630, the patch box transceiver 1640, and the patch memory 1635 are electrically connected and affixed to the enclosure 1510.

[00125] In operation, the patch box transceiver 1640 receives a patch box activation signal through the cellular network. The patch box processor 1630 retrieves the patch box activation signal from the patch box transceiver 1640. The patch box processor 1630 generates and sends a solenoid activation signal to the solenoid 1520. The solenoid 1520 receives the solenoid activation signal and release the latch 1525. The patch 1515 falls out of the enclosure 1500.

[00126] In an alternative embodiment, the solenoid controlled releasing mechanism is replaced by other releasing mechanism. In one embodiment, the releasing mechanism is controlled by a magnetic switch.

[00127] In an alternative embodiment, the enclosure 1510 is constructed to have different shapes.

[00128] In an alternative embodiment, the latch 1525 is installed on to different part of the enclosure 1510 to present the patch 1515 in different fashion.

[00129] In an alternative embodiment, the enclosure 1510 contains a plurality of patches.

[00130] In an alternative embodiment, the power source 1625 is complemented by an alternative power supply. In one embodiment, the power source is complemented by a wall power connection.

[00131] In an alternative embodiment, the power source 1625 is replaced by an alternative power supply. In one embodiment, the power source is replaced by a wall power connection.

[00132] In an alternative embodiment, the power source 1625, the patch box processor 1630, the patch box transceiver 1640 are affixed onto different area of the enclosure 1510.

[00133] In an alternative embodiment, the patch box has alarms that is activated remotely.

[00134] In an alternative embodiment, the patch box transceiver 1640 is replaced by other data receiving and transmitting deceive. In one embodiment, the patch box transceiver is replace by a patch box transmitter and patch box receiver.

[00135] Figure 17 illustrates a pull station according to one embodiment of the invention containing the backing plate 1705, an enclosure 1710, a transceiving unit 1715, a sign 1720, and a pull lever 1725.

[00136] The enclosure 1710 is affixed onto the backing plate 1705. The transceiving unit 1715 is affixed onto the backing plate 1710. The sign 1720 is affixed to the front of the enclosure 1710. The pull lever 1725 is affixed to the front of the enclosure through a switching mechanism. The pull lever 1725 is also electrically connected to the transceiving unit 1715 through an electrical contact.

[00137] In operation, when the pull lever 1725 is pulled, the pull lever 1725 makes contact with the electrical contact contained the in transeciving unit 1715.

[00138] In an alternative embodiment, the backing plate 1705 and enclosure 1710 is constructed to different shapes.

[00139] In an alternative embodiment, the sign 1720 is replaced be other graphical markings.

[00140] In an alternative embodiment, the sign 1720 is detracted from the pull station.

[00141] In an alternative embodiment, the transeciving unit 1715 is affixed to different parts of the backing plate 1705.

[00142] In an alternative embodiment, the transeciving unit 1715 is affixed to different parts of the enclosure.

[00143] In an alternative embodiment, the pull lever 1725 is replaced by other switching mechanism.

[00144] Figure 18 illustrates one embodiment of the transeciving unit 1715 mentioned in Figure 17 containing a pull station power source 1825, a pull station memory 1810, a pull station processor 1805, a pill station transceiver 1815, the pull station electrical contact 1820, and the pull station horn 1825.

[00145] The pull station power source 1825 is electrically connected to the pull station processor 1850, the pull station memory 1810, the pull station transceiver 1815, the pull station electrical contact 105, and the pull station horn 1825. The pull station processor 1805 is eclectically connected to the pull station memory 1810, the pull station transceiver 1815, the pull station electrical contact 105, and the pull station horn 1825.

[00146] In operation, when the pull lever 1725 is pulled, the pull lever 1725 makes contact with pull station electrical contact 1820 causing the pull station electrical contact 1820 to generate and send a notification signal to pull station processor 1805. The pull station processor 1805 receives the notification signal and generates and sends an alarm activation signal to pull station horn 1825. The pull station horn 1825 receives the alarm activation signal and activate the horn to generate an audible alarm. The pull station processor 1805 then generate an activation signal and retrieve the pre-loaded server IP address from pull station memory 1810. The pull station processor 1805 sends the server IP address and the activation signal to pull station transceiver 1815. The pull station transceiver 1815 then sends the activation signal to the server IP address through the cellular network.

[00147] Further in operation, for activating the pull station horn 1825 remotely, the pull station transceiver 1815 receives an activation signal through the cellular network. The pull station processor 1805 retrieves the activation signal from the pull station transceiver 1815. The pull station 1805 generates and sends an alarm activation signal to the pull station horn 1825. The pull station horn 1825 receives the alarm activation signal and activate the horn to generate an audible alarm.

[00148] In an alternative embodiment, the pull station transceiver 1815 is replaced by other data receiving and transmitting deceive. In one embodiment the pull station transceiver 1815 is replaced by a pull station transmitter and pull station receiver.

[00149] In an alternative embodiment, the pull station power source 1825 is complemented by an alternative power supply. In one embodiment, the power source is complemented by a wall power connection.

[00150] In an alternative embodiment, the pull station power source 1825 is replaced by an alternative power supply. In one embodiment, the power source is replaced by a wall power connection.

[00151] In an alternative embodiment, the pull station horn 1825 is replaced by other alarming deceive such as a visual alarm.

[00152] In an alternative embodiment, the pull station horn 1825 is complemented by other alarming device such as a visual alarm in addition to the pull station horn 1825.

[00153] Figure 19 illustrates one embodiment of the image generated at step 1030. The rendered image includes a map 1905, a graphical representation of the patch GPS information 1910, a patch ID 1915, a distance 1920, an elevation 1925, and a phone GPS information 1930.

[00154] In operation, the phone processor 840 retrieves the patch GPS information and the patch IP address from the phone receiver 835. The phone processor 840 then retrieves the map from the phone memory 870. The phone processor 840 then retrieves the phone GPS information from the phone GPS receiver 835. The phone processor 840 then uses the longitude and the latitude within the patch GPS information to overlay the patch GPS information onto the retrieved map for all of the received patch GPS information. The phone processor 840 then uses the longitude and the latitude within the phone GPS information to overlay the phone GPS information onto the retrieved map.

For each of the patch GPS information, the phone processor 840 then uses the longitude and the latitude data within the phone GPS information and the longitude and the latitude data within the patch GPS information to calculate the distance between the phone GPS information and the patch GPS. For each patch GPS information, the phone processor 840 uses the elevation within the phone GPS information and the elevation within the patch GPS information to calculate the elevation difference between the patch GPS information and the phone GPS information. For each patch GPS information, the phone processor 840 assigns an ID to the patch GPS information based on the differences in patch IP address. The phone processor 840 then renders an image of the map overlayed by the patch GPS information and the phone GPS information, the ID of each patch as a column of a form, the distance between the phone GPS information and the patch GPS information for each patch as a column of a form, and the elevation difference between the phone GPS information and the patch GPS information for each patch as a column of a form. The phone processor 840 sends the rendered image to the phone display 845. The phone display 845 displays the rendered image.

[00155] In an alternative embodiment, the image is continuously updated based on the continuously updated phone GPS information and the continuously updated patch GPS information.

[00156] In an alternative embodiment, the form is placed in different area of the generated image.

[00157] In an alternative embodiment, the form is rendered and displayed in different order.

[00158] In an alternative embodiment, the form contains additional information.

[00159] In an alternative embodiment, the generated image contains additional information.

[00160] Existing notification systems does not teach how the system could be used to remotely activate emergency response devices. The present invention of an emergency repones device remote activation system teaches how an emergency device could be remotely activated. Existing medical dressing does not teach how to track the medical dressing once deployed. The present invention of a location tracking and displaying system teaches a medical dressing with a transmitting unit affixed to it. The transmitting unit, once powered by deploying the medical dressing, receives and sends a GPS coordinate to a server. The server sends the GPS coordinate to a phone. The phone renders and images of a map overlayed with the GPS coordinate for the phone display to display.

[00161] While particular elements, embodiments, and applications of the present invention have been shown and described, it is understood that the invention is not limited thereto because modifications may be made by those skilled in the art, particularly in light of the foregoing teaching. It is therefore contemplated by the appended claims to cover such modifications and incorporate those features which come within the spirit and scope of the invention.

CLAIMS

1. A system for remotely activating emergency response devices comprising:

a first device, wherein said first device comprising: a first device computer readable medium storing a predetermined identification number and a first IP address, a first device processor, a first device transceiver, wherein said first device transceiver transmits said predetermined identification number to said firsts IP address;

a server, wherein said server comprising: a server receiver configured to receive messages from said first IP address, a server computer readable medium storing a predetermined table correlating the identification number with related identification number and a second IP address corresponds with the related identification number, and a server transmitter, wherein said server transmitter transmits a message to the second IP address; and

a second device, wherein said second device comprising: a second device receiver configured to receive messages from said second IP address, a second device computer readable medium storing machine-readable instructions, and a second device processor, wherein said second device processor, when activated by receiving said message, executes the instructions stored in said second device computer readable medium.

2. The system in claim 1, wherein said first device is activated by a switching mechanism.

3. The system in claim 1, wherein the said server computer readable medium stores a machine-readable instruction, wherein, upon receiving said message from said first IP address, said server processor executes said machine-readable instruction causing the system to report an occurrence of danger event to a police dispatch system.

4. The system in claim 1, wherein the said second computer readable medium stores a machine-readable instruction, wherein, upon receiving said message form said second IP address, said second device processor

executes said machine-readable instruction causing the second device to activate an alarm system.

5. A trackable medical dressing system comprising:

a backing layer;

an adhesive layer affixed to the backing layer;

a removable electrical insulating film affixed to the adhesive layer, wherein the insulating film breaks the electrical connection of an electrical circuit and makes said electrical circuit once detached from said adhesive layer;

6. The system in claim 5, wherein said electrical circuit connects a power source to a transmitting chipset.

7. The system in claim 5, wherein the transmitting chipset comprising a transmitting computer readable medium storing a third IP address, a transmitting transmitter, and a transmitting GPS receiver.

8. The system in claim 5, wherein, when said electrical circuit is completed, said GPS receiver receives a GPS coordinate, said transmitting transmitter transmits said GPS coordinate to said third IP address stored in said transmitting computer readable medium.

9. The system in claim 5, wherein the backing layer contains a gas check valve that allows one way gas movement.

10. The system in claim 5, wherein the medical dressing is stored in an enclosure, wherein the enclosure is remotely operable.

11. The system in claim 5, wherein a server comprising a receiver configured to receive messages from said third IP address and stores the said GPS coordinate in a server computer readable medium.

12. A system for displaying tracked GPS coordinates comprising:

a first device, wherein said first device comprising a first device GPS receiver, a first device computer readable medium storing a first IP address, and a first device transmitter, wherein said first device transmitter transmits the received GPS coordinate to said first IP address;

a server, wherein said server comprising: a server receiver configured to receive messages from said first IP address, a server computer readable medium storing a second IP address, a server processor, and a server transmitter, wherein said server transmitter transmits said GPS coordinate to the second IP address; and

a second device, wherein said second device comprising: a second device receiver configured to receive messages from said second IP address, a second device computer readable medium storing a map, a second device processor, wherein said second device processor, after receiving said GPS receiver, rendered an image with said GPS coordinate overlayed onto said map, and a second device display, wherein said second device display displays said rendered image.

13. The system in claim 12, wherein said second device has a second device GPS receiver and stores a third IP address in said device computer readable medium.

14. The system in claim 12, wherein said second device transmits a received second device GPS coordinate to said third IP address.

15. The system in claim 12, wherein said server processor decides if said GPS coordinate is sent to said second IP address based on the distance between said GPS coordinate and said received second device GPS coordinate.

16. The system in claim 12, wherein said first device GPS receiver receives an elevation and said first device transmitter transmits said elevation to said first IP address.

17. The system in claim 12, wherein said second device processor renders said received second device GPS coordinate onto said image.

18. The system in claim 12, wherein said second device has a see through display and a positioning system wherein said positioning system detects the angle and direction of said see through display.

19. The system in claim 12, wherein said second device processor renders said image with said GPS coordinate based on the angle and direction of said see through display for said see through display to display.

ABSTRACT

A method and system are provided which allows emergency response devices to be remotely activated and allows a medical dressing to be tracked and the location to be displayed. For remotely activating emergency response devices, a first device is activated by user. The first device sends an activation signal and an ID # to a server. The server, based on which device was activated by comparing the ID # with all other ID #s stored in the server memory, activates other emergency response devices by sending a device activation signal to the targeted devices or executes predetermined commands. For tracking and displaying the location of a medical dressing, the medical dressing is fitted with a transmitting unit, where the transmitting unit is activated upon using the medical dressing and transmits a GPS coordinate to a server. The server sends the GPS coordinate to a user's device. The device renders an image containing a map and the GPS coordinate rendered onto the map. The device displays the rendered image to track the medical dressing.

Too long 150 word limit

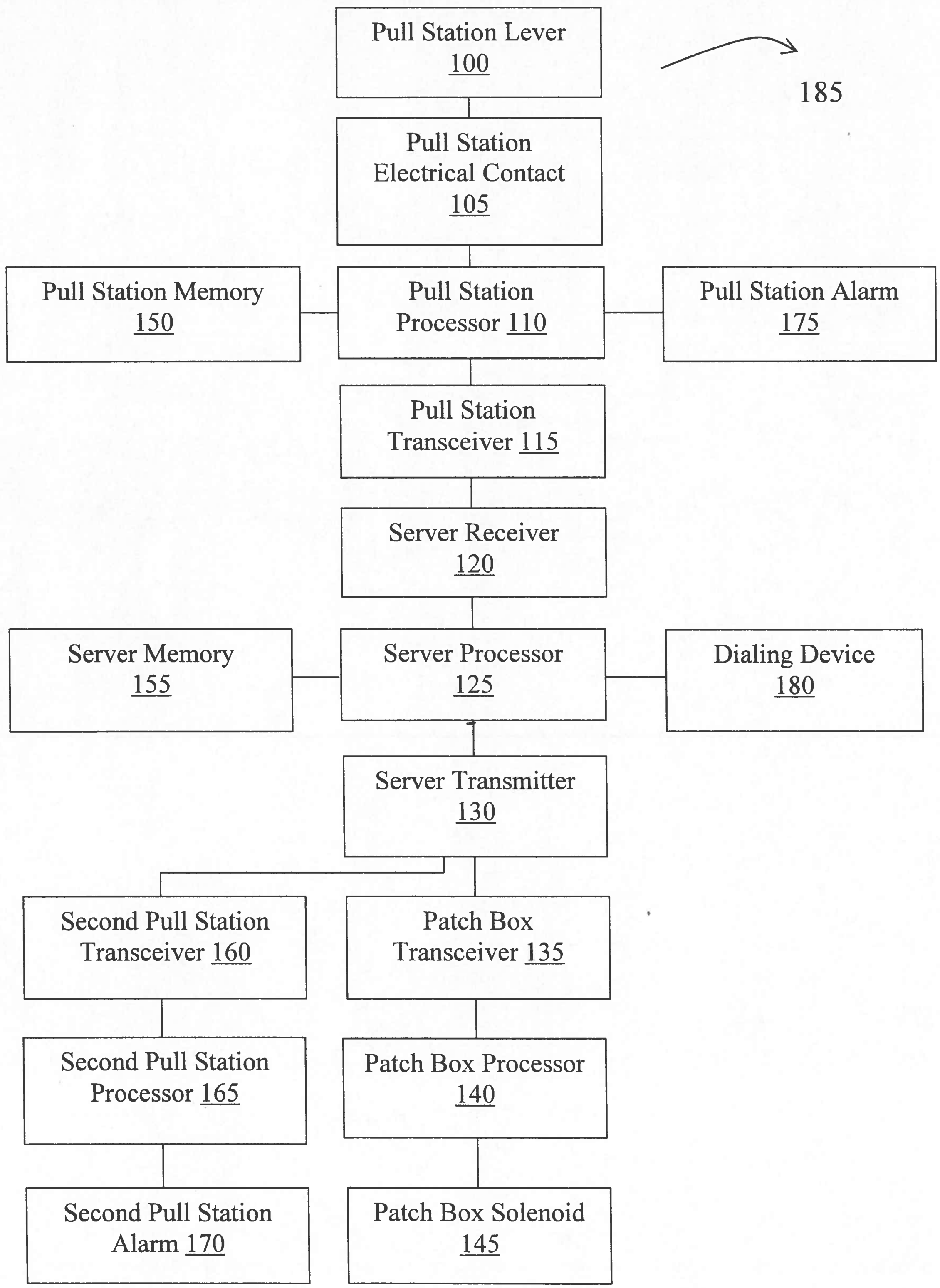
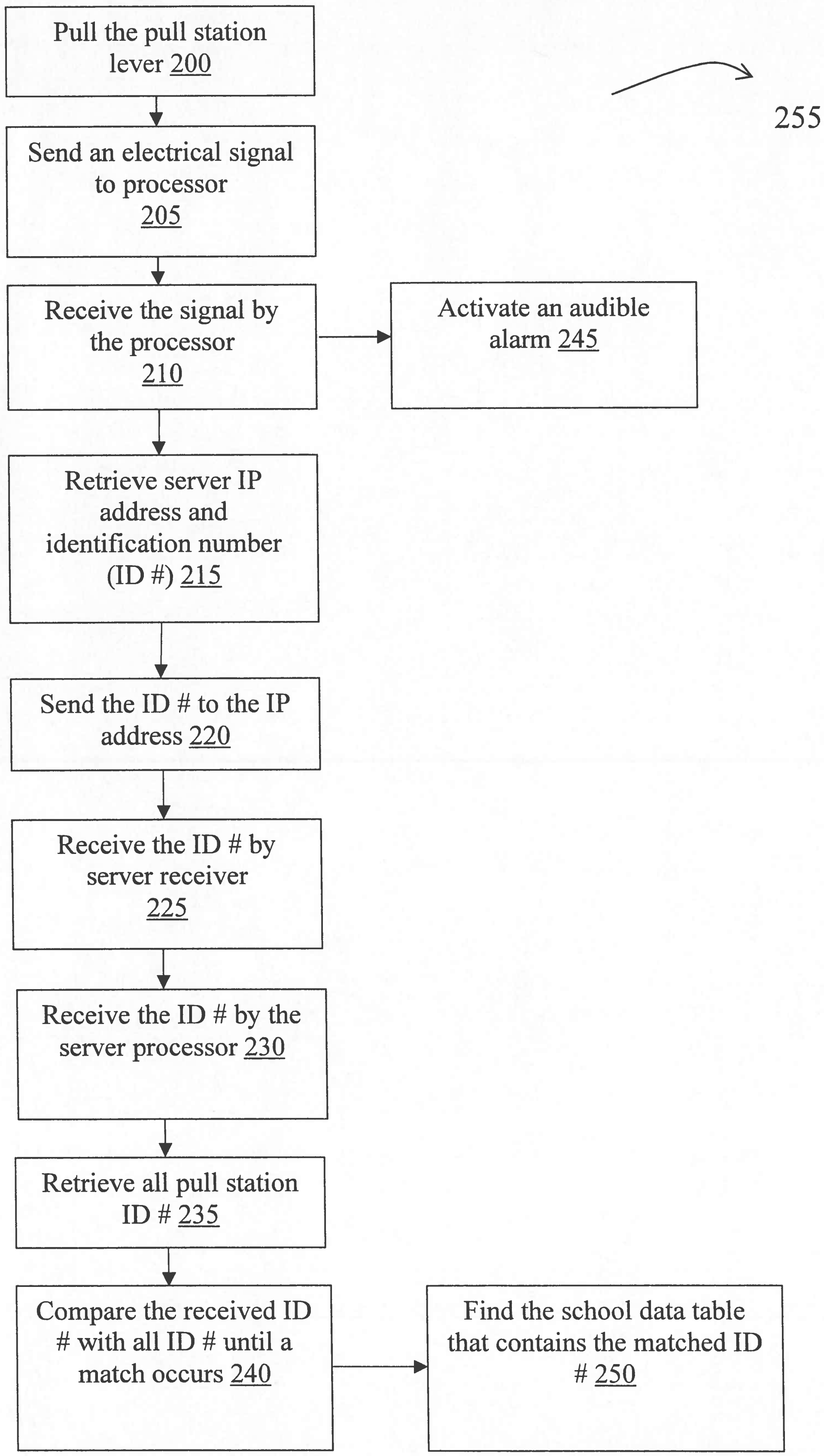

Pull Station Lever 100
185
Pull Station Electrical Contact 105
Pull Station Memory 150
Pull Station Processor 110
Pull Station Alarm 175
Pull Station Transceiver 115
Server Receiver 120
Server Memory 155
Server Processor 125
Dialing Device 180
Server Transmitter 130
Second Pull Station Transceiver 160
Patch Box Transceiver 135
Second Pull Station Processor 165
Patch Box Processor 140
Second Pull Station Alarm 170
Patch Box Solenoid 145

Figure 1

Figure 2


Pull the pull station lever 200
255
Send an electrical signal to processor 205
Receive the signal by the processor 210
Activate an audible alarm 245
Retrieve server IP address and identification number (ID #) 215
Send the ID # to the IP address 220
Receive the ID # by server receiver 225
Receive the ID # by the server processor 230
Retrieve all pull station ID # 235
Compare the received ID # with all ID # until a match occurs 240
Find the school data table that contains the matched ID # 250

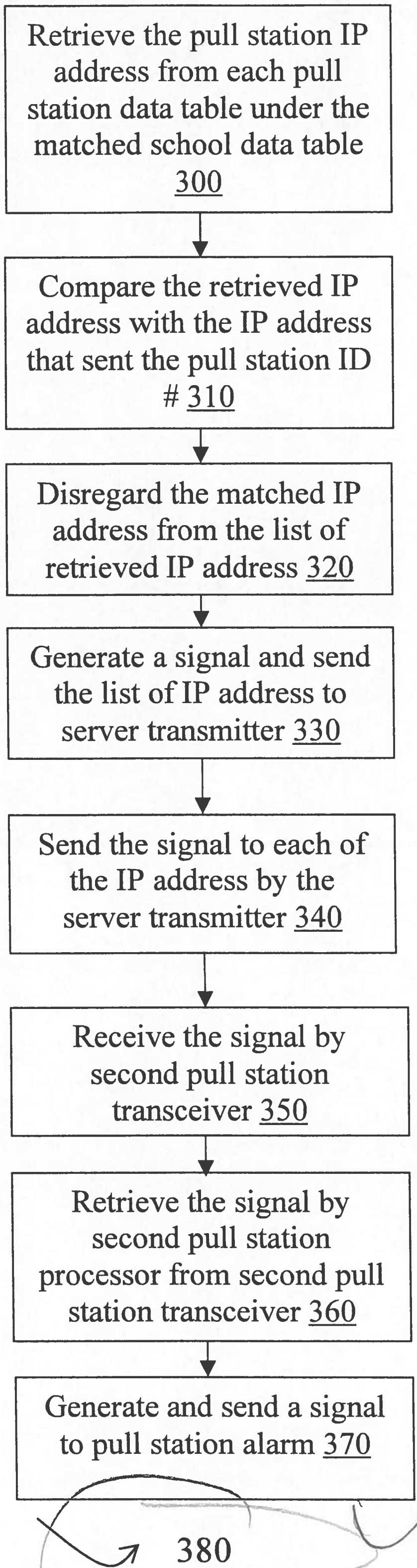


Figure 3

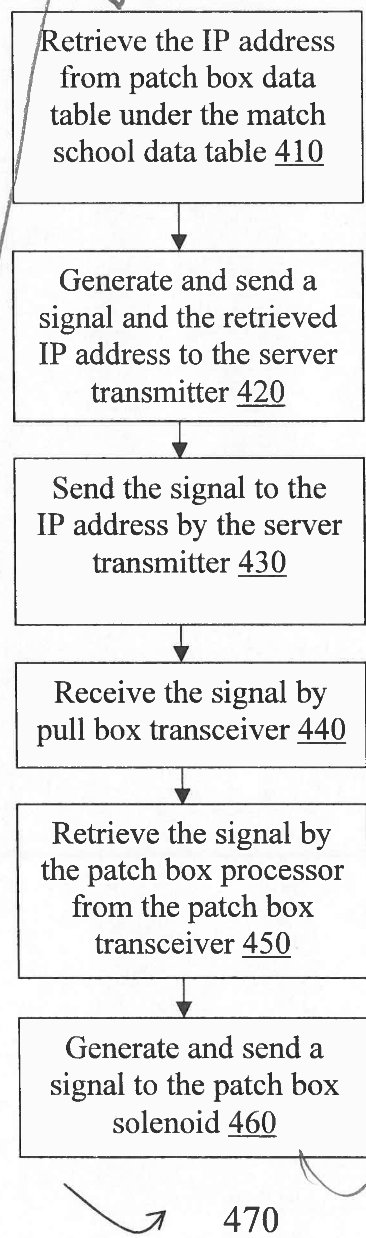


Figure 4

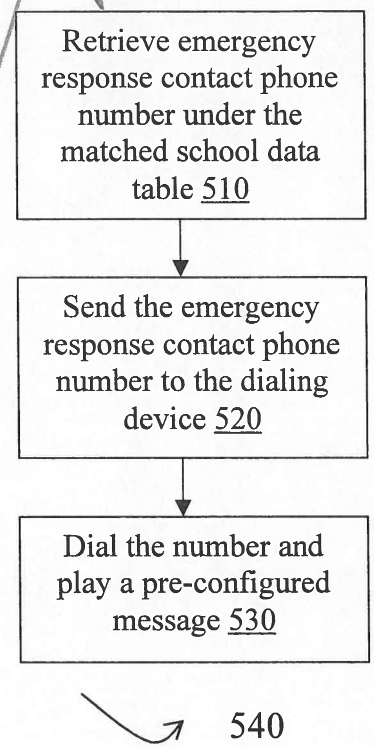


Figure 5

all 1 fig?

Figure 6

Server Memory 155

- Frist School Data Table 615

First School Data Table 615

- Pull Station Data Table 620
- Patch Box Data Table 625
- Address of the School 630
- Emergency Response Contact Phone Number 635
- School GPS Coordinates 640
- Predetermined Distance Factor 641
- Pre-configured Message 642

Pull Station Data Table 620

- Frist Pull Station Data Table 645
- Second Pull Station Data Table 650

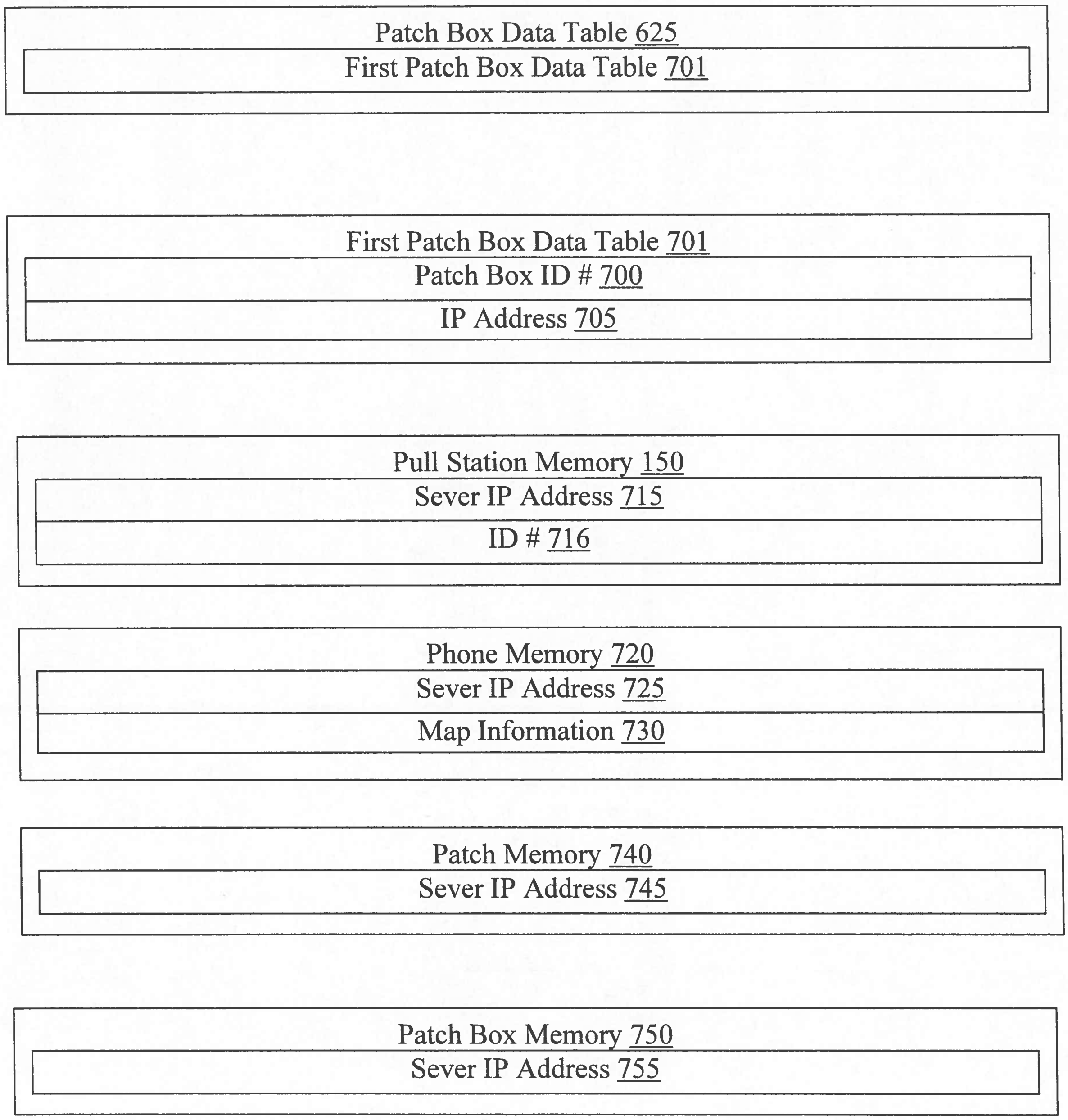
First Pull Station Data Table 645

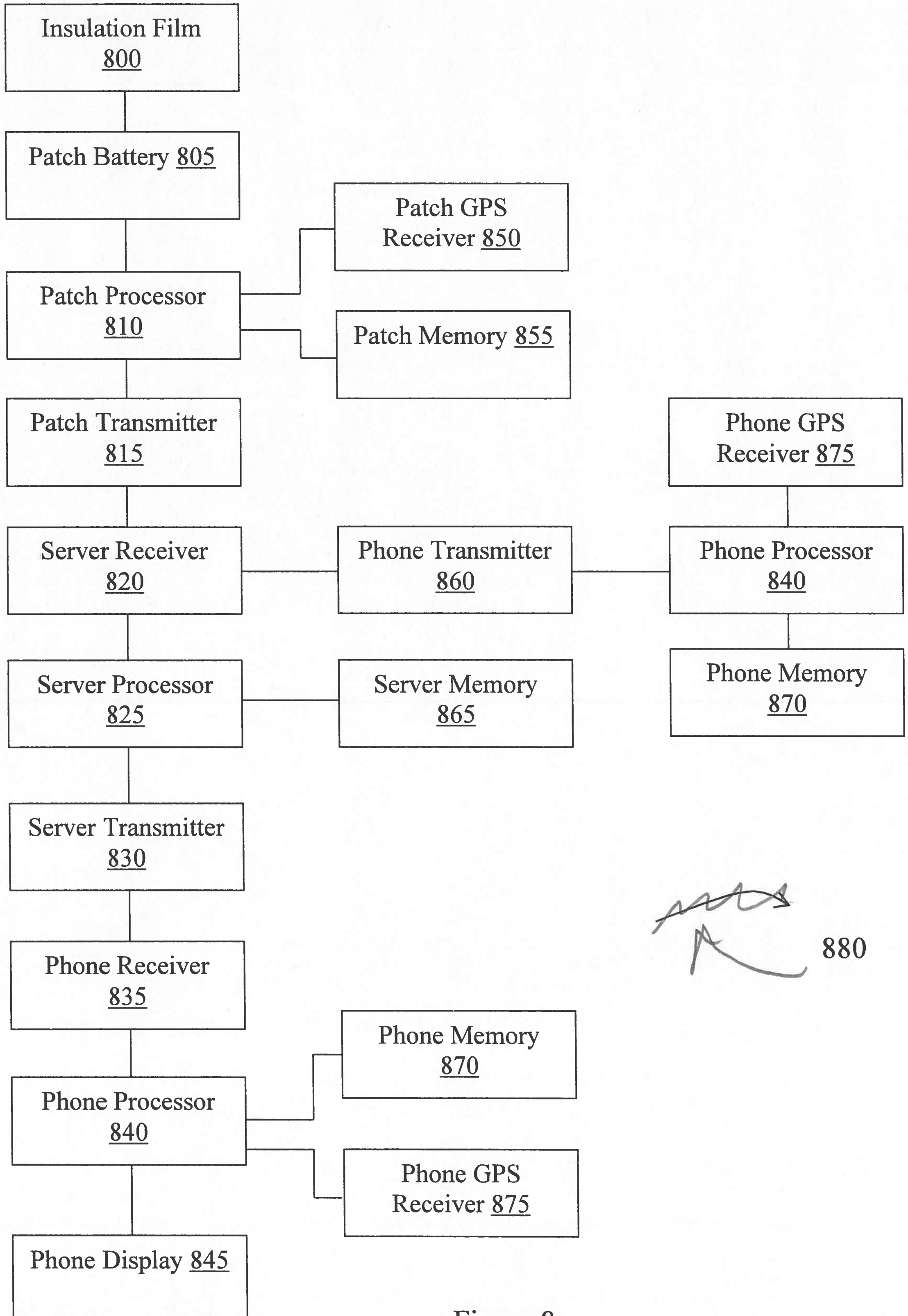
- First Pull Station ID # 655
- IP Address 660

Second Pull Station Data Table 650

- Second Pull Station ID # 665
- IP Address 670

Figure 7


Patch Box Data Table 625
First Patch Box Data Table 701
First Patch Box Data Table 701
Patch Box ID # 700
IP Address 705
Pull Station Memory 150
Sever IP Address 715
ID # 716
Phone Memory 720
Sever IP Address 725
Map Information 730
Patch Memory 740
Sever IP Address 745
Patch Box Memory 750
Sever IP Address 755



Insulation Film 800
Patch Battery 805
Patch GPS Receiver 850
Patch Processor 810
Patch Memory 855
Patch Transmitter 815
Phone GPS Receiver 875
Server Receiver 820
Phone Transmitter 860
Phone Processor 840
Phone Memory 870
Server Processor 825
Server Memory 865
Server Transmitter 830
880
Phone Receiver 835
Phone Memory 870
Phone Processor 840
Phone GPS Receiver 875
Phone Display 845

Figure 8

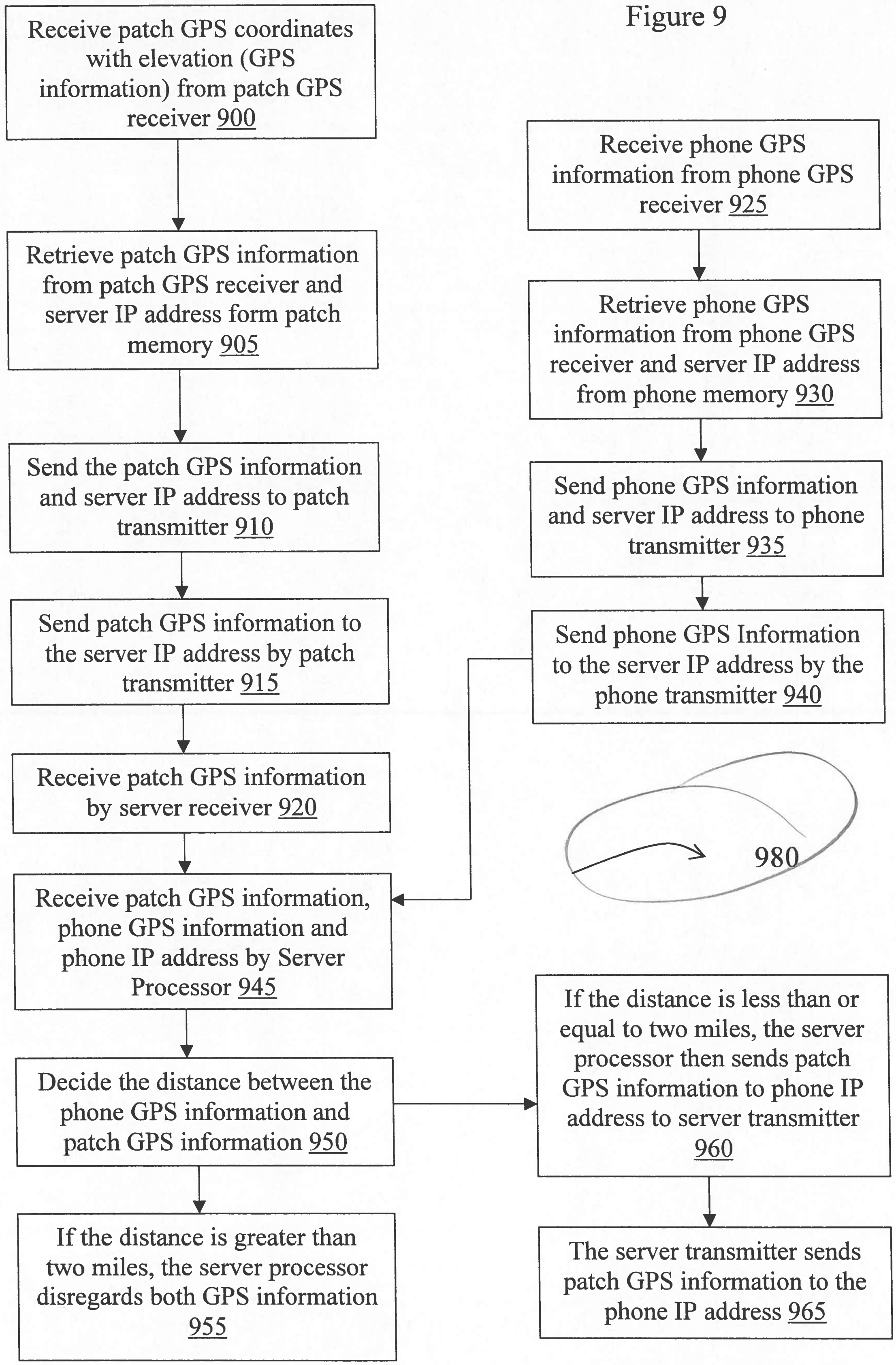
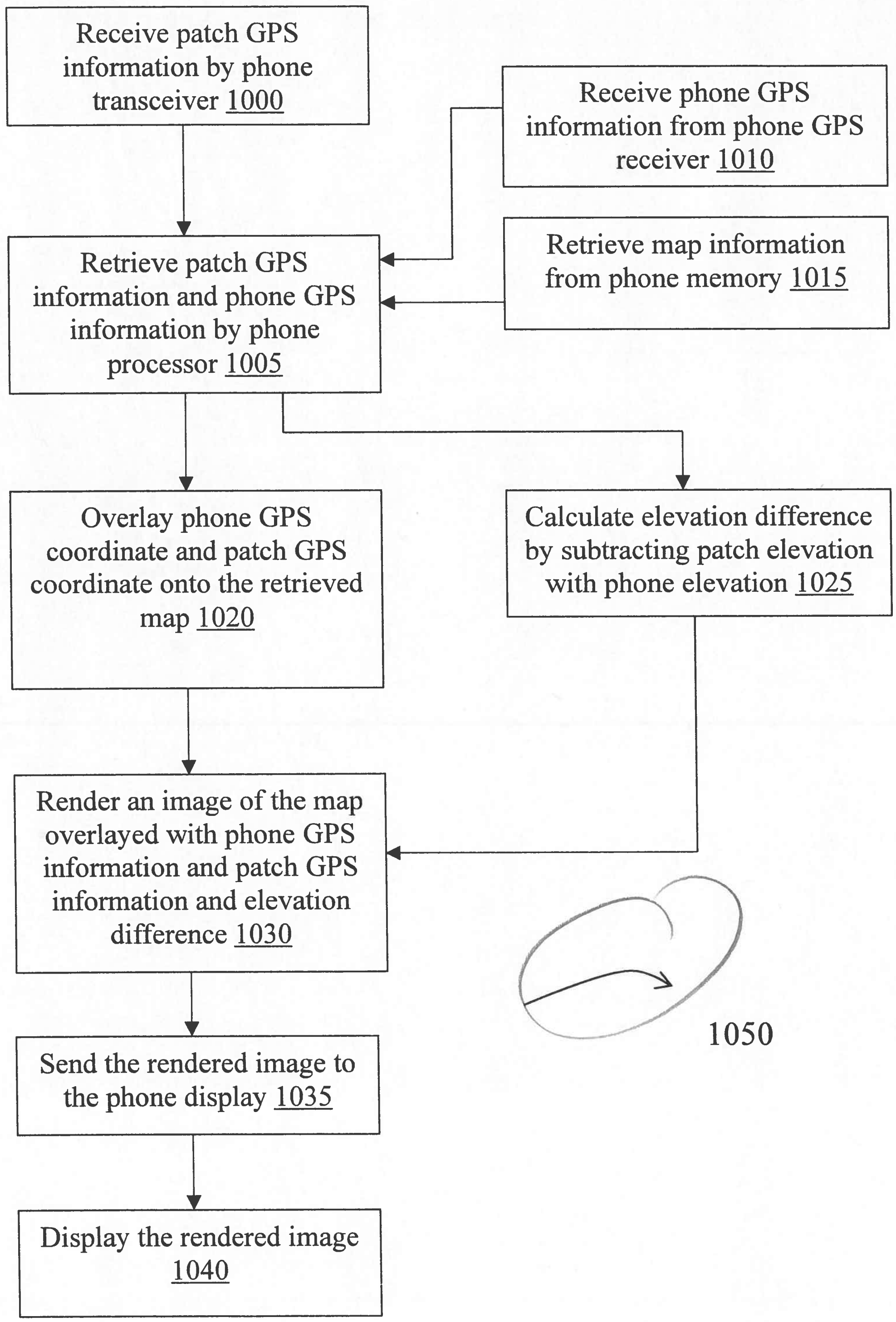

Receive patch GPS coordinates with elevation (GPS information) from patch GPS receiver 900
Retrieve patch GPS information from patch GPS receiver and server IP address form patch memory 905
Send the patch GPS information and server IP address to patch transmitter 910
Send patch GPS information to the server IP address by patch transmitter 915
Receive patch GPS information by server receiver 920
Receive patch GPS information, phone GPS information and phone IP address by Server Processor 945
Decide the distance between the phone GPS information and patch GPS information 950
If the distance is greater than two miles, the server processor disregards both GPS information 955
Receive phone GPS information from phone GPS receiver 925
Retrieve phone GPS information from phone GPS receiver and server IP address from phone memory 930
Send phone GPS information and server IP address to phone transmitter 935
Send phone GPS Information to the server IP address by the phone transmitter 940
980
If the distance is less than or equal to two miles, the server processor then sends patch GPS information to phone IP address to server transmitter 960
The server transmitter sends patch GPS information to the phone IP address 965

Figure 9

Figure 10


Receive patch GPS information by phone transceiver 1000
Receive phone GPS information from phone GPS receiver 1010
Retrieve map information from phone memory 1015
Retrieve patch GPS information and phone GPS information by phone processor 1005
Overlay phone GPS coordinate and patch GPS coordinate onto the retrieved map 1020
Calculate elevation difference by subtracting patch elevation with phone elevation 1025
Render an image of the map overlayed with phone GPS information and patch GPS information and elevation difference 1030
1050
Send the rendered image to the phone display 1035
Display the rendered image 1040

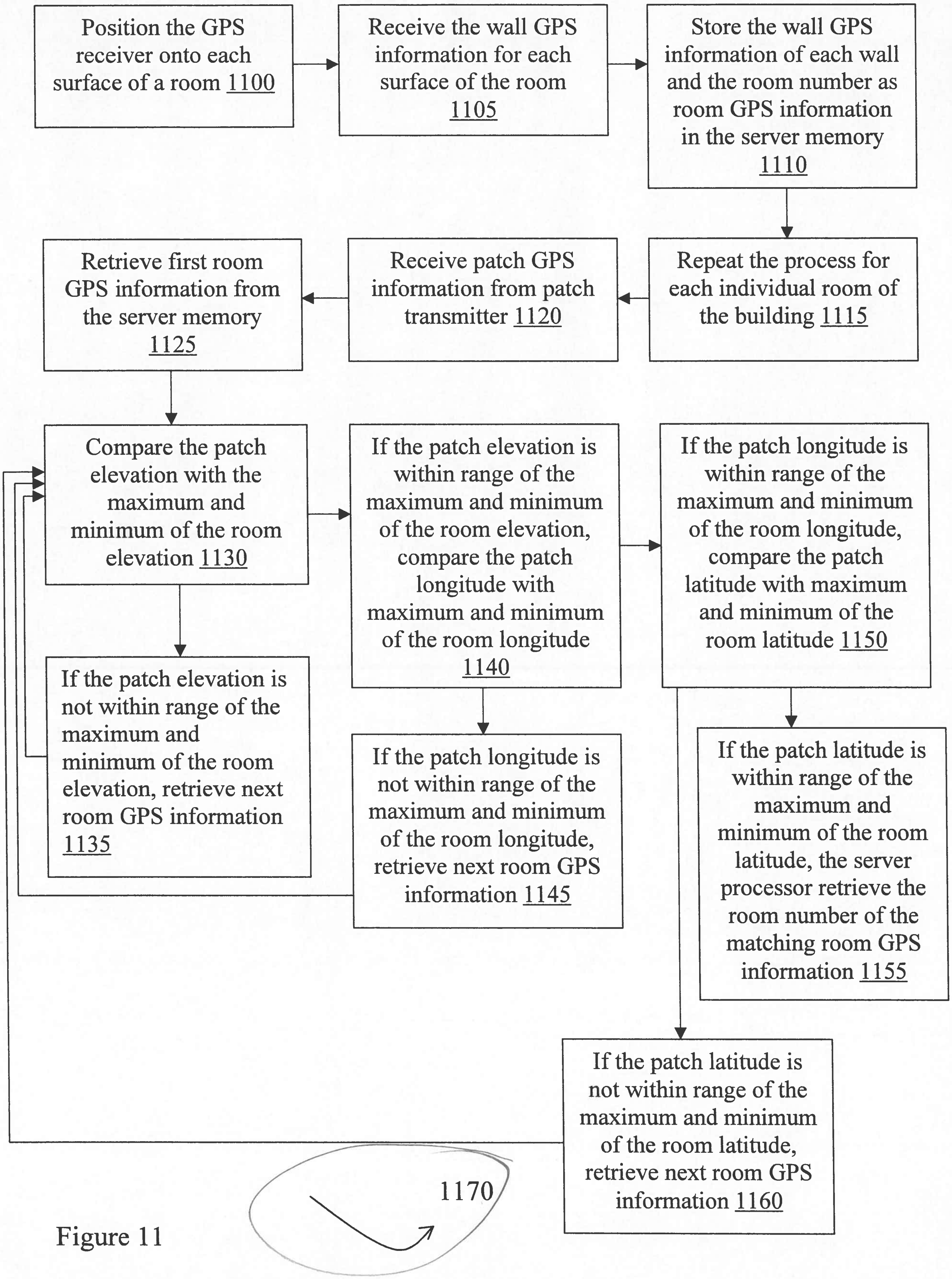

Position the GPS receiver onto each surface of a room 1100
Receive the wall GPS information for each surface of the room 1105
Store the wall GPS information of each wall and the room number as room GPS information in the server memory 1110
Repeat the process for each individual room of the building 1115
Receive patch GPS information from patch transmitter 1120
Retrieve first room GPS information from the server memory 1125
Compare the patch elevation with the maximum and minimum of the room elevation 1130
If the patch elevation is not within range of the maximum and minimum of the room elevation, retrieve next room GPS information 1135
If the patch elevation is within range of the maximum and minimum of the room elevation, compare the patch longitude with maximum and minimum of the room longitude 1140
If the patch longitude is not within range of the maximum and minimum of the room longitude, retrieve next room GPS information 1145
If the patch longitude is within range of the maximum and minimum of the room longitude, compare the patch latitude with maximum and minimum of the room latitude 1150
If the patch latitude is within range of the maximum and minimum of the room latitude, the server processor retrieve the room number of the matching room GPS information 1155
If the patch latitude is not within range of the maximum and minimum of the room latitude, retrieve next room GPS information 1160
1170

Figure 11

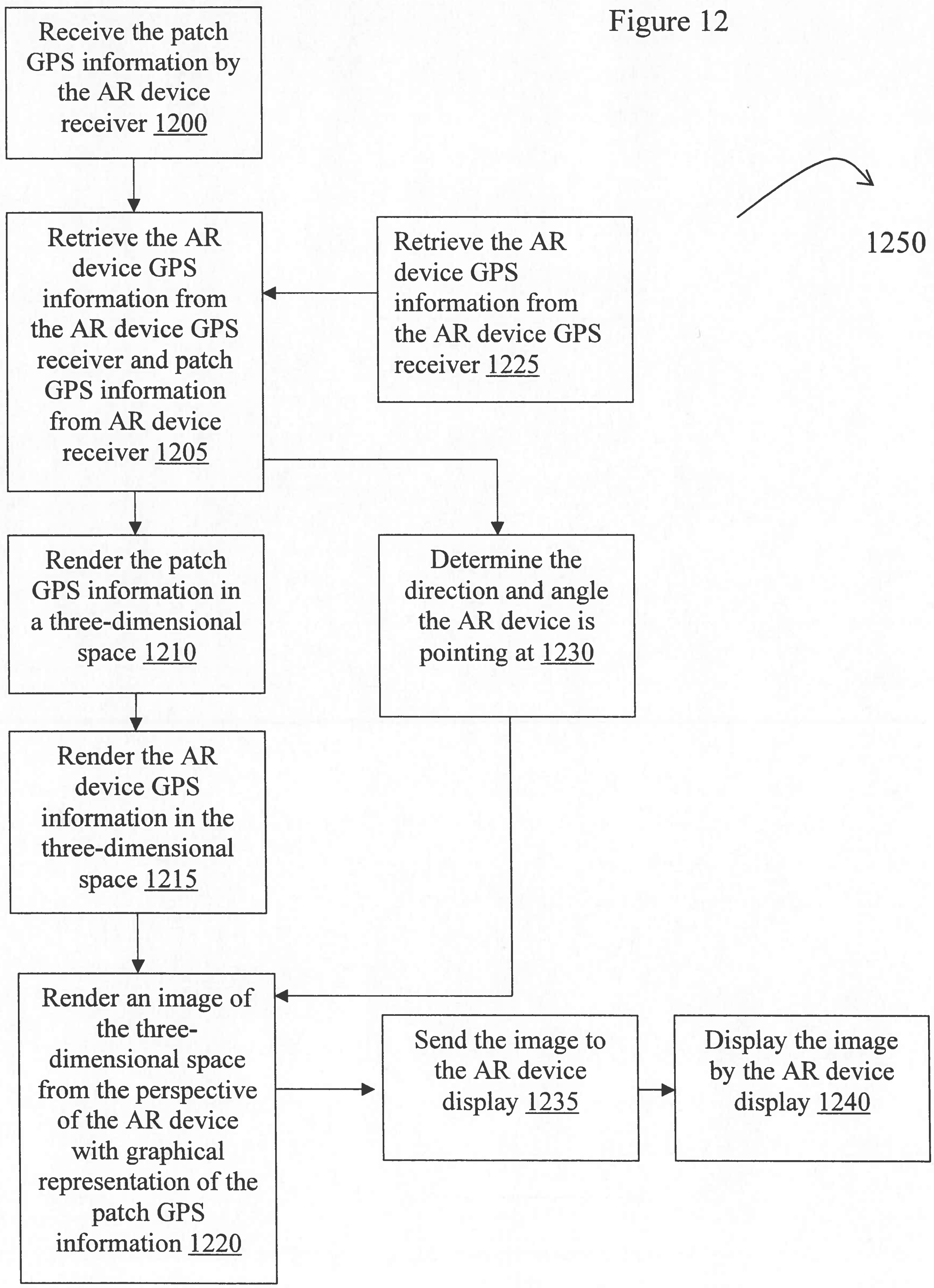

Receive the patch GPS information by the AR device receiver 1200
Retrieve the AR device GPS information from the AR device GPS receiver and patch GPS information from AR device receiver 1205
Retrieve the AR device GPS information from the AR device GPS receiver 1225
1250
Render the patch GPS information in a three-dimensional space 1210
Determine the direction and angle the AR device is pointing at 1230
Render the AR device GPS information in the three-dimensional space 1215
Render an image of the three-dimensional space from the perspective of the AR device with graphical representation of the patch GPS information 1220
Send the image to the AR device display 1235
Display the image by the AR device display 1240

Figure 12

Figure 13

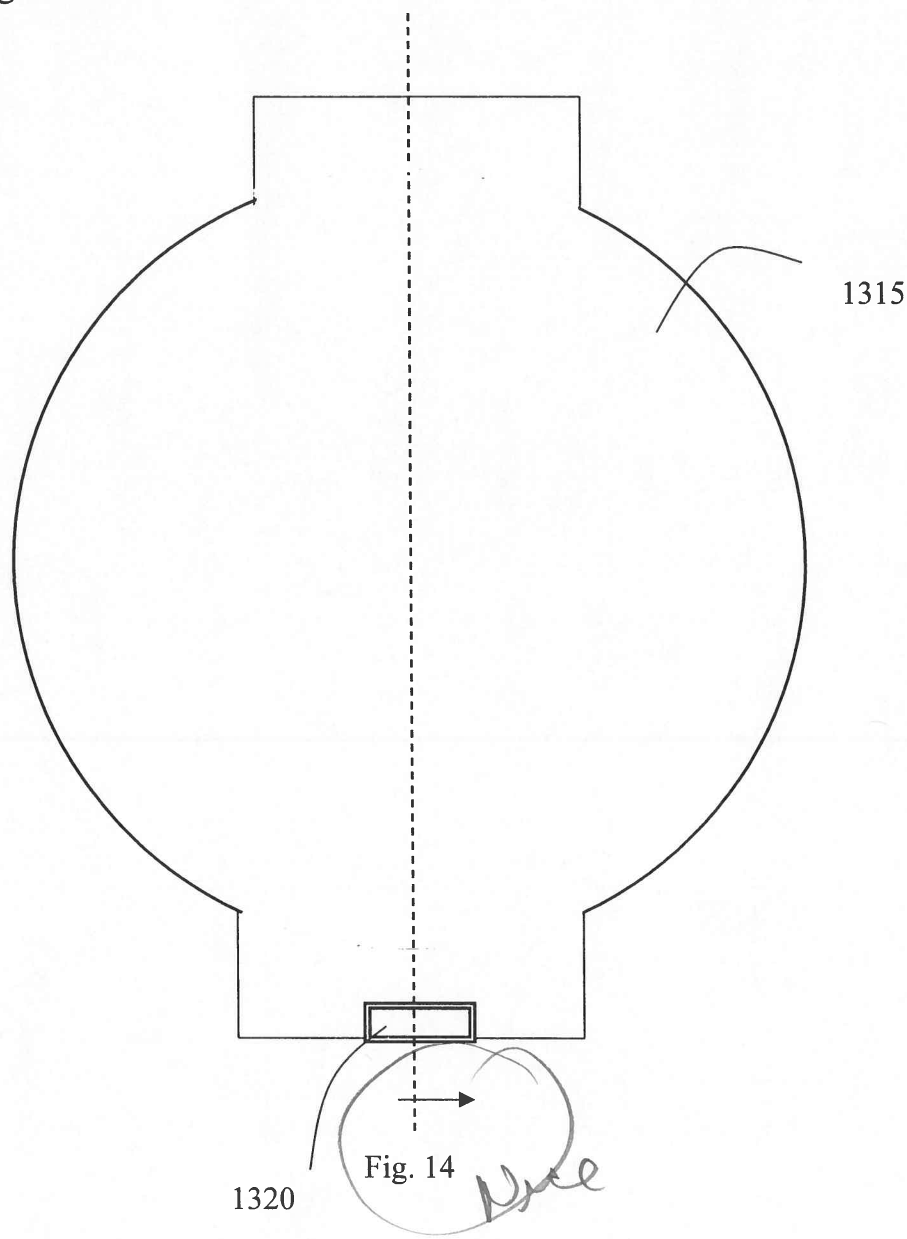
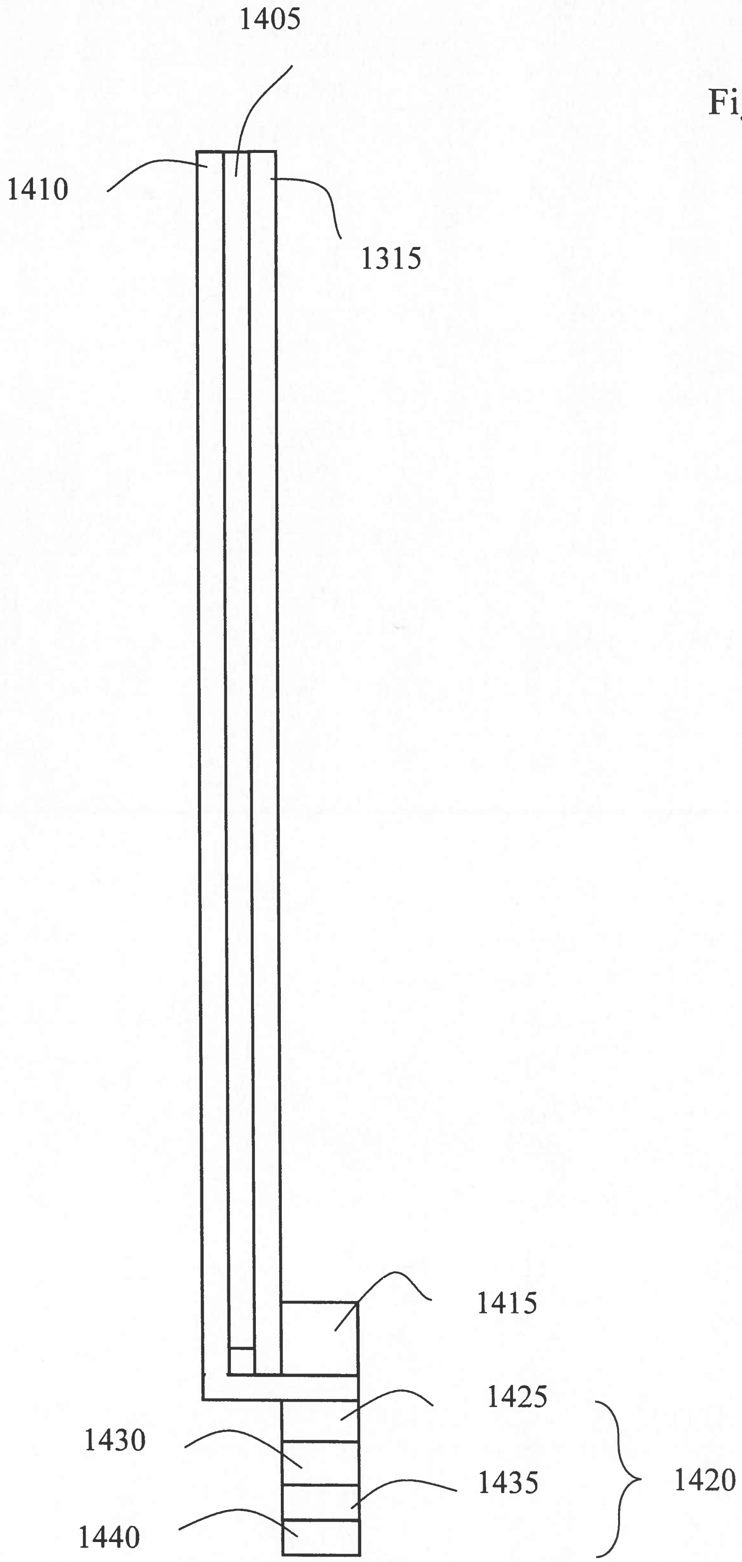


Figure 14



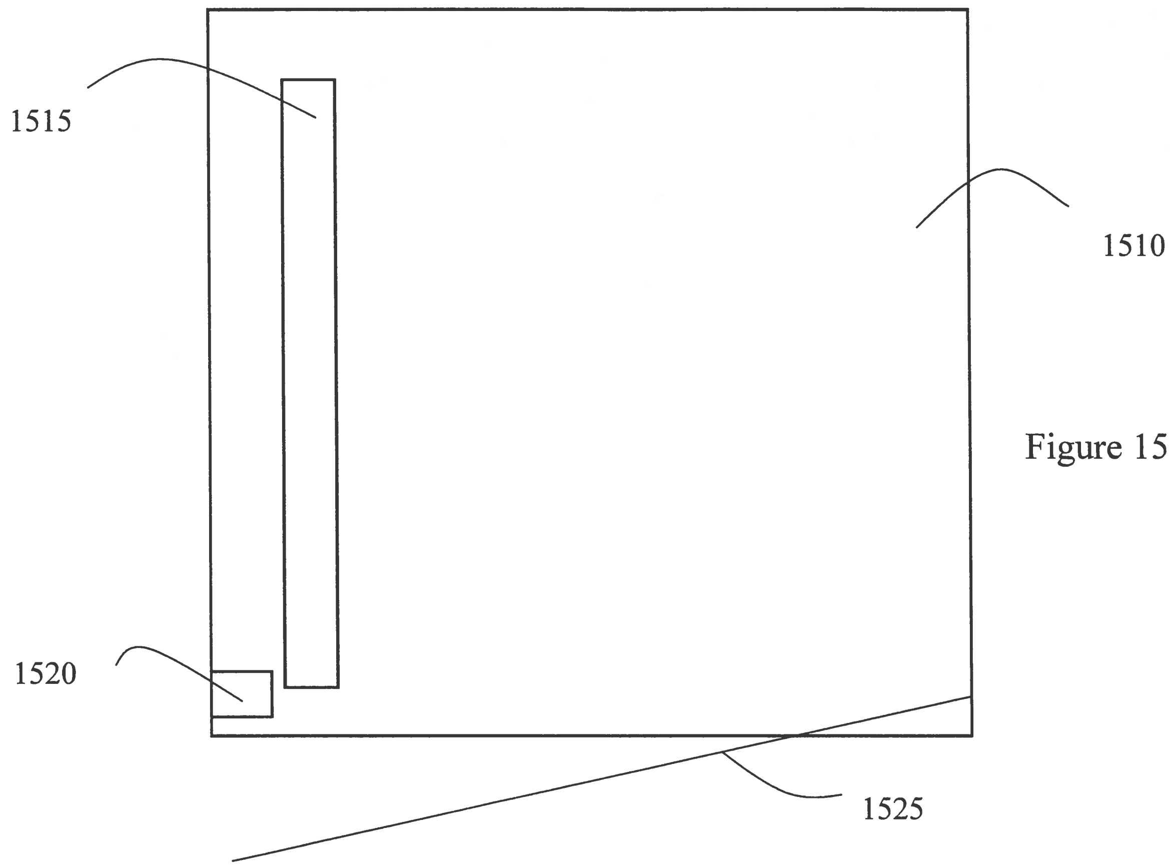


Figure 15

Figure 16

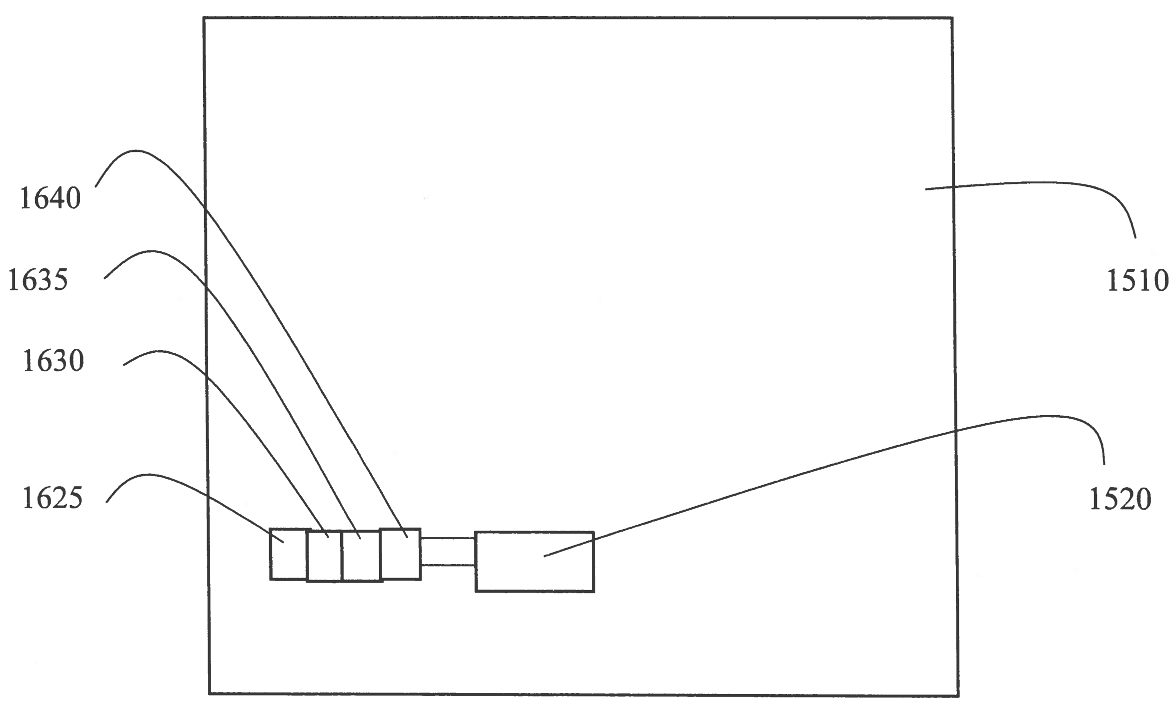


Figure 17

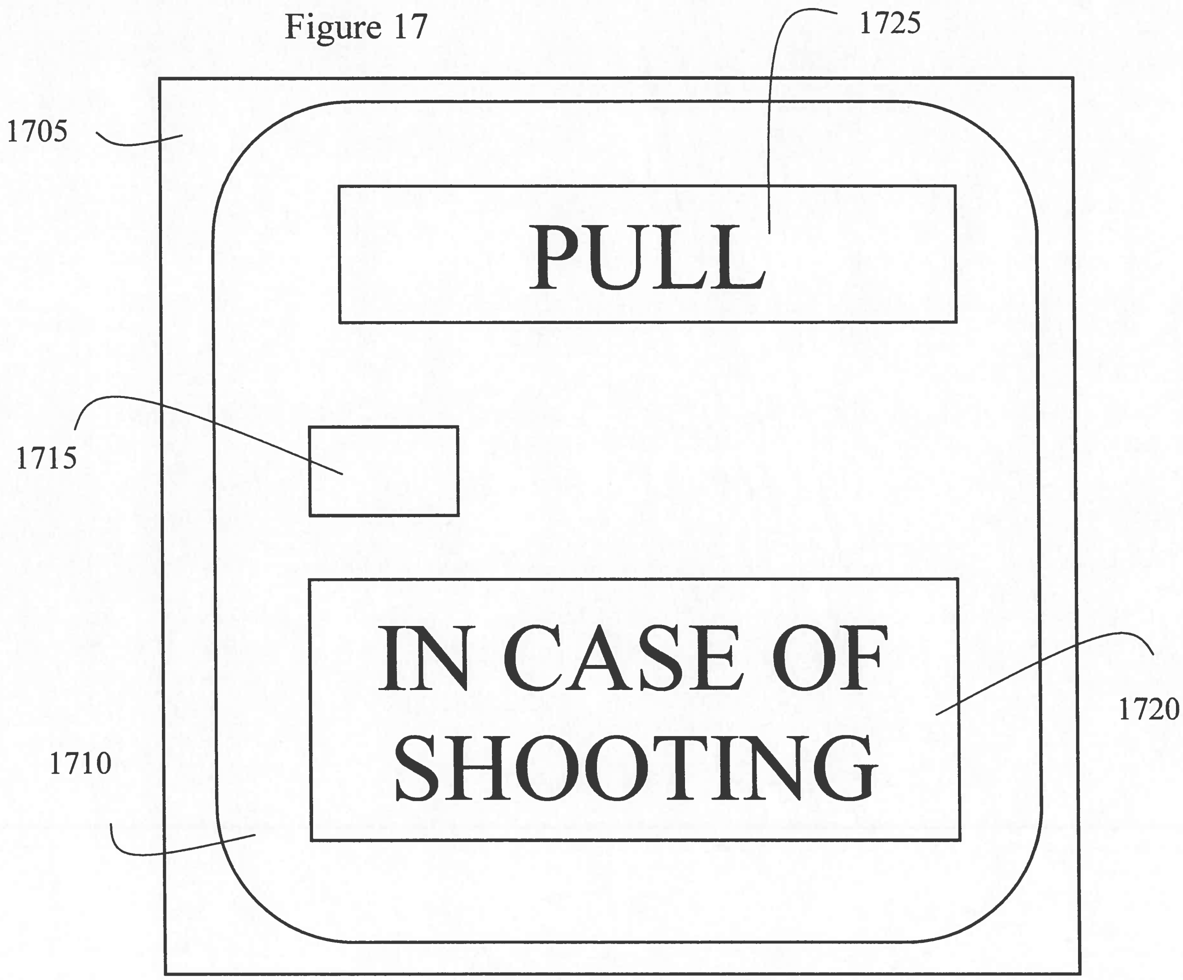


Figure 18

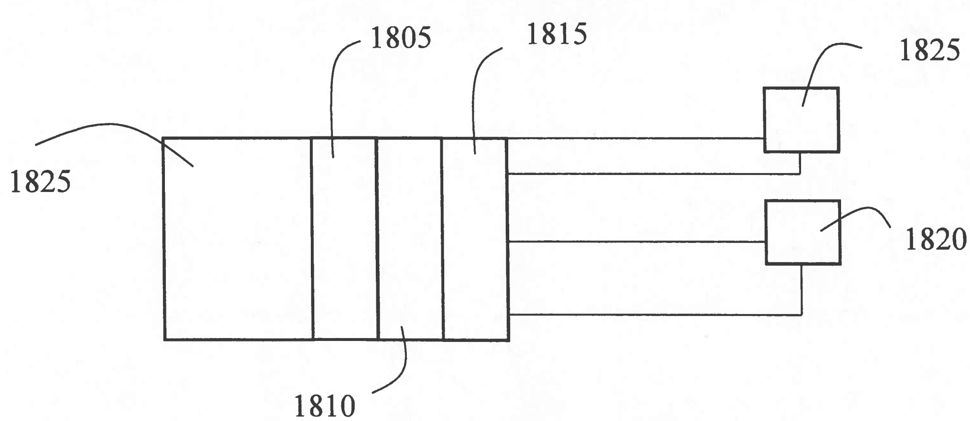
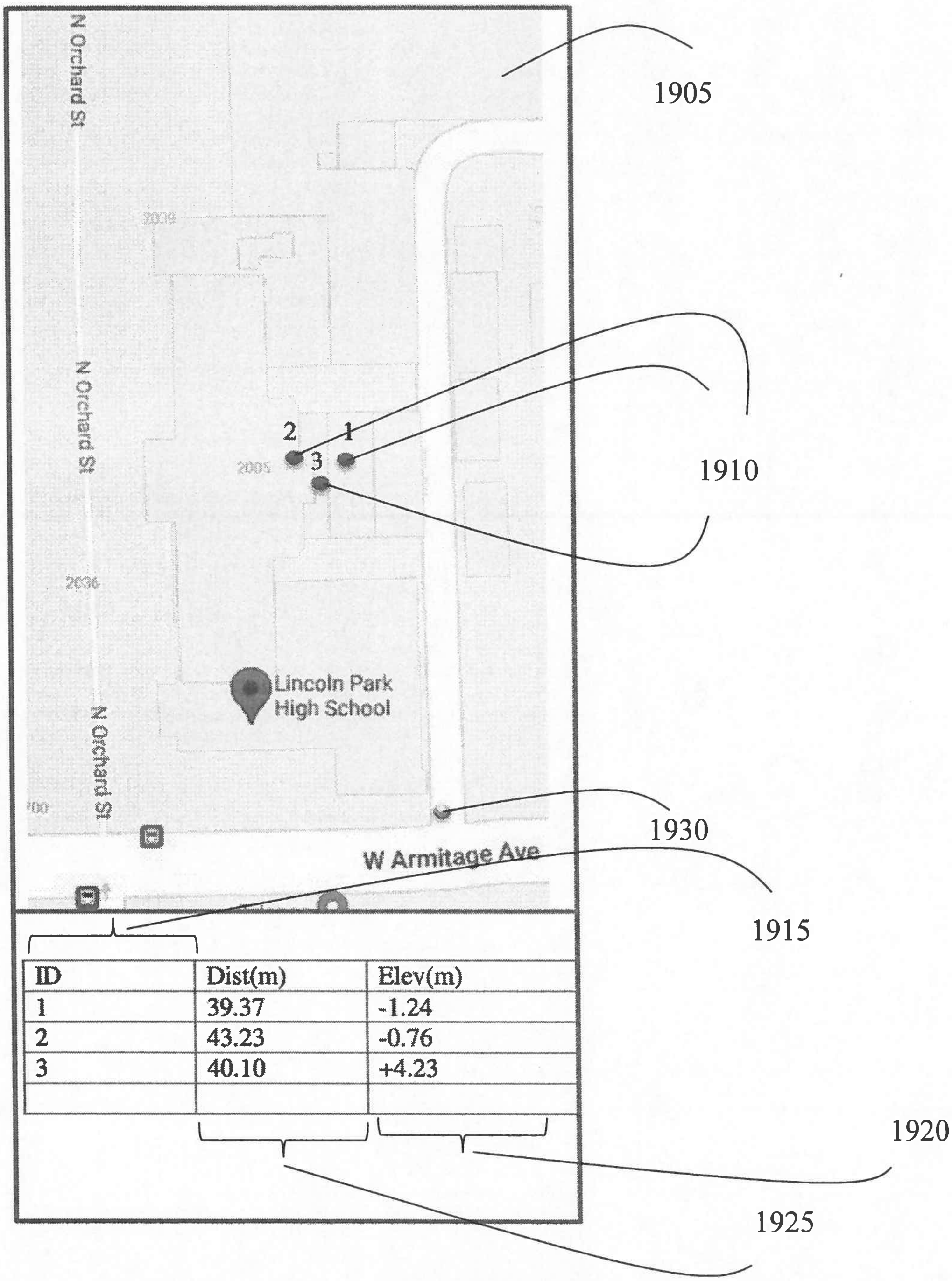


Figure 19



ID	Dist(m)	Elev(m)
1	39.37	-1.24
2	43.23	-0.76
3	40.10	+4.23